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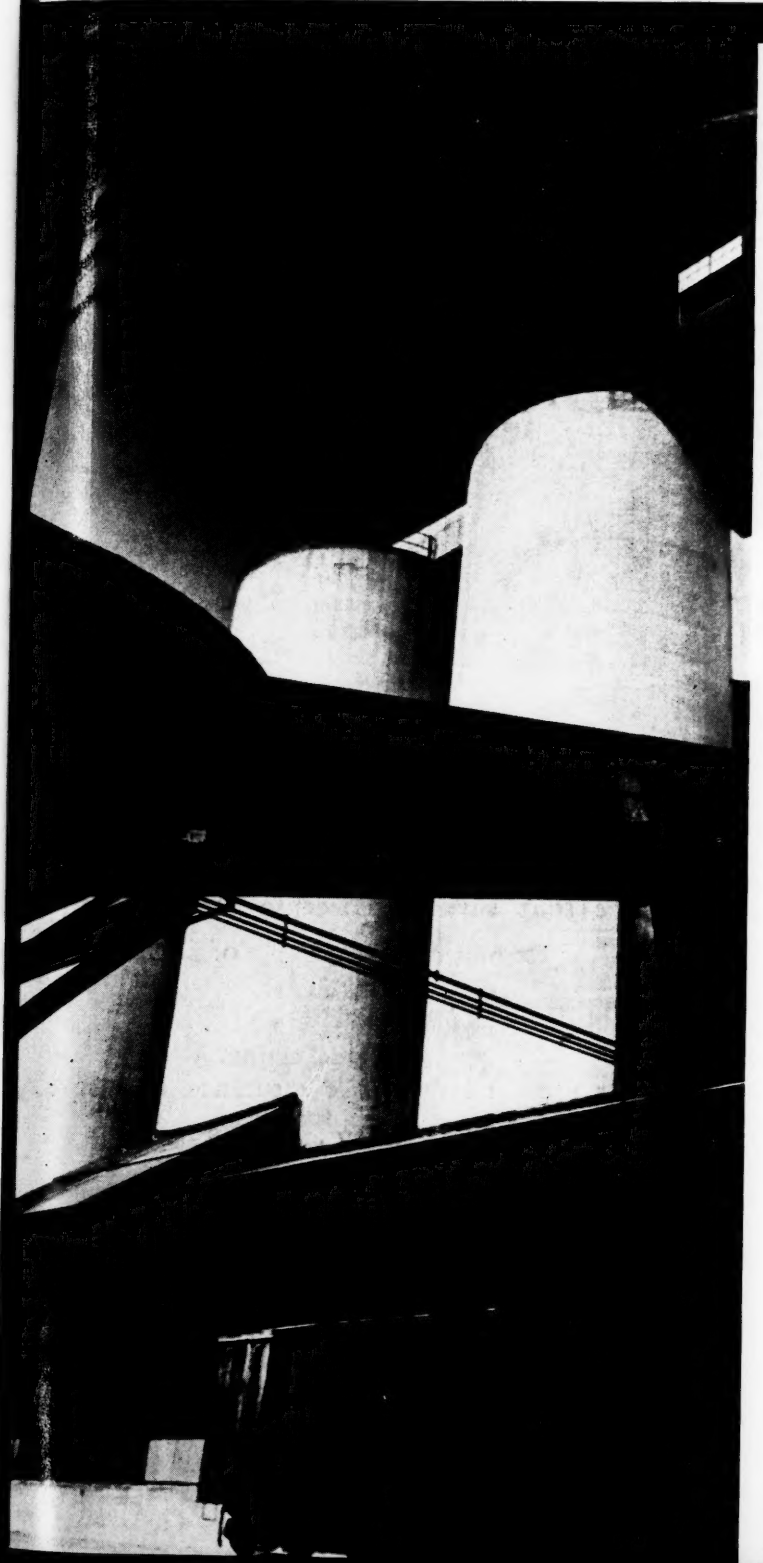


Unlimited Spending —Unlimited Taxes

There has been sown a large debt and the harvest is being reaped in rapidly mounting taxes. Spending goes on and old taxes are increased and new ones devised. They doubtless could be borne more cheerfully if the country felt wild spending would stop. Recommendations however for more and more money are still being urged.

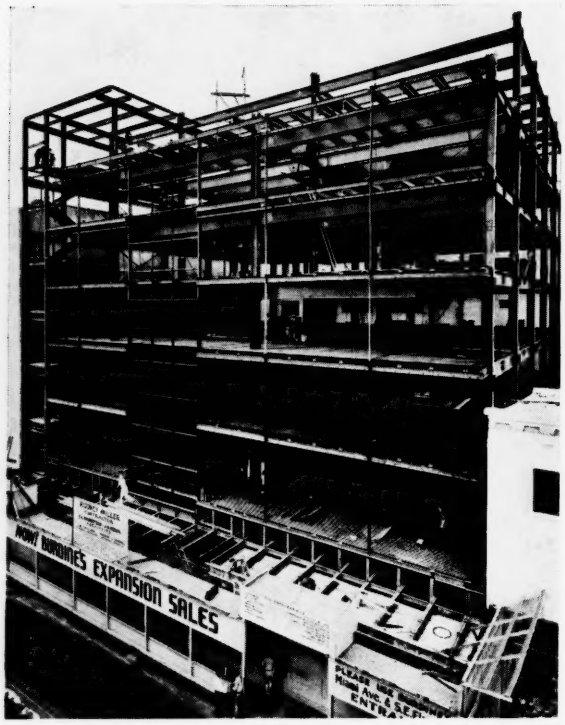
Taxes are being levied on bank deposits; at least one Legislature has heard a bill to tax gross receipts, and state executives are urging the diversion of gasoline tax collections away from roads.

What a different result there would have been if the ingenuity displayed in finding things to tax had been exerted for economy in place of extravagance.

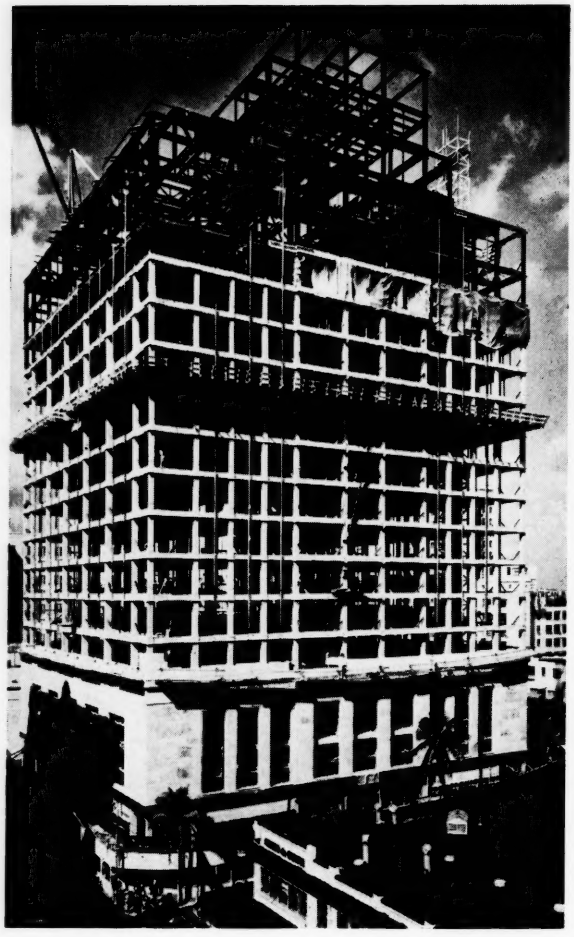
FEBRUARY, 1939

Southern Alkali Corporation's Storage Silos at Corpus Christie, Texas. See article page 30

XUM



Above: Burdine Building, Miami, Florida; E. L. Robertson, Miami, Architect; L. B. Taylor, Miami, Structural Engineer; Rodney Miller, Miami, General Contractor.



Right: Alfred I. duPont Building, Miami. Marsh and Saxelbye, Jacksonville, Archts. George A. Fuller Co., New York, Gen'l. Contrs.

More Miami Skyline

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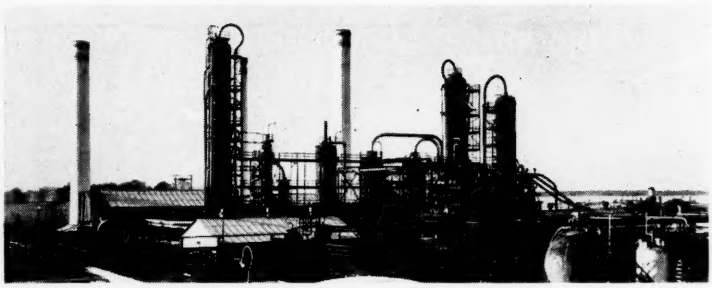

One of two combination high pressure units recently completed at Smith Bluff refinery near Port Arthur, Texas, for the Pure Oil Co.

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MANUFACTURERS RECORD
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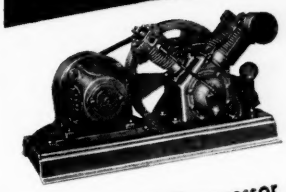

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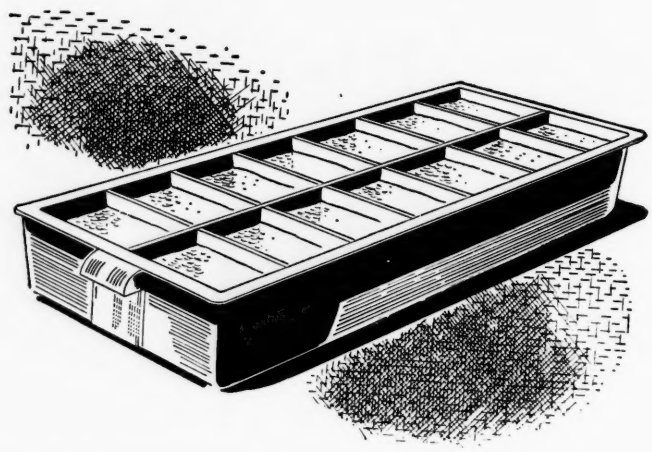

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PROFLIGATE SPENDING MUST STOP

PROTESTS are heard in increasing number from all parts of the South against continued extravagance by government.

The business minds of this section are in accord with the opinions of business men everywhere that there must be a halt in spending borrowed money for things we don't need and a vigorous retrenchment program started by Congress.

The tax bill is getting to be unbearable and it is recognized that the rapidly mounting public debt makes eventual currency inflation or outright repudiation—virtually the same thing—more than a bare possibility.

This is the cold truth as to what is disturbing to business. What are we getting for the billions handed out? What has been accomplished? What will the dollar be worth? The idle will never have regular jobs until industry needs more workers. Pump priming has failed. And with the results, or lack of them, clear to all capable of judging, the sophistry is handed out that public and private debt together are no greater than in 1929.

"No one in America shall starve" has been the excuse government has used to go outside its proper function and assume a role never intended for it.

State rights have been thrust aside with the help, it is true, of local politicians anxious to keep in the favor of the unthinking who count at voting time. Vast enterprises have been undertaken in communities unable to pay for them; enterprises started by government in direct competition with private business, and in other cases inducements offered by government in the form of outright gifts of 45 per cent of free money if communities wanted to get in on a supposed good thing they couldn't otherwise have. Senator Glass has said we will look back on it all some day and call it "a horrible nightmare" and he was right.

The big politicians have tried their cures couched in meaningless phrases and the little fellows have gone along. There have been some however, and among them are stalwarts of the South, who have had the courage to stand up and denounce the wastefulness that has gone on. The country owes them a debt of gratitude.

Everything depends on the present Congress. It will be asked to settle many questions—the so-called farm problem which several years of administrative "settling" hasn't settled at all. There has been unloaded on Uncle Sam, as one phase of "settling," 11 million bales of cotton he is holding, and we have lost a large part of our foreign market.

The Wage and Hour bill will be up for review as it is quite possible the present bill will add to the total of unemployment and do more harm than good.

The Labor Relations Act, which has caused more disturbance in business than any recent legislation, it is hoped will be drastically amended now that the American Federation of Labor is pointing out its glaring defects.

But the main thing—the all important vital thing—that will give more encouragement to business than anything else is for Congress to stand firm against appropriations for new and untried ventures and cut down on unnecessary bureaus and other wastes.

The debt now is close to 40 billion. Note its growth in the last six months. One half of that *increase* used to run the government for a year not so very long ago.

The Charlotte Observer points out:

"The startling fact that the estimated Federal deficit for the year 1939 is $133 million higher than the total amount of money spent by the Federal government from the Revolutionary war to the Civil war, during the 76 years from 1789-1864, appears in a recent study by the Statistical Division of the National Industrial Conference Board.

"For 1939 the estimated Federal deficit is $3,985 million, while the Federal government spent

As we see it—

only $3,852 million for the entire period through 1864. One year's deficit is over a hundred million dollars higher than 76 years' expenses.

"Another interesting comparison shows that the deficit for the nine years, 1931-1939, is nearly $300 million greater than Federal expenditures for the 125 years, 1789-1913. In other words, since 1931 our government has incurred a greater deficit, $24,814 million, than it was able to spend in all the years up to the start of the World War, a sum of $24,522 million.

"The deficit for two months in modern times, July and August, 1938, is $40 million greater than the average amount spent per year during the period 1900-1913."

The action of the Senate in sustaining the House's cut of $150,000,000 from the Administration's Relief appropriation is definitely heartening, showing as it does a determined independence in the face of tremendous pressure.

Broaden the Income Tax Base

THE MANUFACTURERS RECORD has said before and repeats that our lawmakers in considering revenue producing means should no longer put aside the consideration of a broader base for income taxes.

We have discussed previously the fallacious claims made for certain supposed "rights" of citizenship, but this is one that should be accorded to every citizen with an income. The word is used advisedly. There never was a time in our history when it was more important than now for the people of this country of both sexes to take deeper interest in government.

We have come upon strange times that have produced strange cure-alls for every form of human ill, both real and imagined. There is groping and uncertainty not only here but throughout the world, a seething and unrest among workers and students. The young are being led away from the ideals of our democracy which held to the principles of hard work, thrift and individual responsibility.

Wherever blame may rest, the facts are apparent. It may be as we have acquired ways of luxury, life has become less of the struggle once thought necessary to the formation of character. But whatever the cause, there is a drifting that is bad. If the America we have known is to fulfill what most of us of an older generation like to regard as its high destiny, there must be a wider spread—a more universal interest in the affairs of government.

There must be more studious care given to the class of men we are electing to public office in state and nation. Only by such means, by more active interest of all the people in what is going on, will the American form of government be preserved. Broadening the base of the tax will go a long step toward accomplishing the purpose outlined and produce needed revenue to meet overpowering debt.

Of course, it must be graded down to meet the circumstances of the man of small income, but he has his part in the preservation of liberty and it will represent a share in government as well as the privilege of voting. It will have the merit of an open tax in contrast to the insidious hidden taxes now applying to everything, including what we eat and wear.

There is a substantial sentiment in Congress against further huge expenditures. The adoption of a broader based income tax measure will strengthen their hands. From every standpoint the matter deserves the earnest, prompt and favorable consideration of the Congress.

Notes on the Business Situation

BUSINESS men are hopeful but not jubilant. As a matter of fact in the past few weeks there has been a falling off in volume of production. Belief is expressed rather definitely, however, that business will be better and not worse during the balance of the year.

The war scare in Europe has had a disturbing effect, as it is realized that war between the great powers would bring an unfavorable reaction here, temporarily at least. But the major cause of the slowing up has been uncertainty over the domestic situation. In that is involved the probability of higher taxes necessary to meet the huge debt load of Federal and state governments, and even if there is no new legislation of a restrictive kind, the problems of the Wage and Hour law are still to be met in some industries while the Wagner Labor Relations Act remains as a constant threat to employer-employee relations.

On the brighter side, the apparent purpose of Congress to resist attempts to put through further large appropriations without careful study and debate, and the promise of relief for the railroads afford distinct

encouragement. In this connection the carriers for the last two months have had somewhat better business, but their basic troubles are terrific taxes and laws that require unnecessary outlays.

What form the relief will take has not been worked out, but the temper of the people and their representatives indicate ways will be found to improve conditions so that the railroads may operate under private management under more encouraging conditions than have been experienced for several years. It may take the form of consolidations; the removal of government competition in water-borne traffic; a liberalization of tax laws, both Federal and state. Whatever will put the railroads in a position to buy as they did in normal times is an essential move for the good of the country.

While no estimate of the development is available, it is likely the utilities will cooperate in expansion plans to meet government requests for emergency power requirements. This in addition to their budgeted outlays for improvements should be reflected in the demand for capital goods as well as in increased employment.

The automobile outlook indicates sustained demand for cars. Not as large an increase perhaps for 1939 as early estimates predicted, but it is believed present prospects point to 25 per cent to 33-1/3 per cent increase in output this year over last.

Summing up, the outlook is better for this year than last and with cooperation on the part of our lawmakers, business will make definite, sustained progress.

The Public Stake

AT A TIME when business has been accused of many kinds of wrong doing and organizations rendering necessary public service are afraid of what the next move of Government will be, it is well to be reminded now and then of the far-reaching partnership the public holds in business enterprise.

The New York *Herald-Tribune* calls attention to a study made by the Monsanto Chemical Company to throw fresh light on "Who Owns American Industry?" Besides their individual shareholders, there are 1,601 estates or trusts owning stock; 34 investment trusts; 42 universities or colleges; 72 life insurance companies; 121 hospitals, charitable or educational foundations.

When the investors, policy-holders and participants in these various bodies are considered, the research discloses an enormous interest in the weal or woe of this one enterprise.

Similar results embracing millions of the population are found in the share list of most of our successful corporations.

The vital stake the general public has in the success of business is a thing to be kept in mind.

New Wealth From Research

DR. WILLIAM A. HAMOR, Assistant Director of the Mellon Institute of Industrial Research, makes impressive statements in a summary of world progress published in Industrial and Engineering Chemistry.

Expenditures in the United States for industrial and engineering research during 1938 are estimated at $180,000,000, while industrial research laboratory personnel increased from 6,600 in 1920 to approximately 44,000 in 1938. There are now 1,700 such laboratories in operation.

"Throughout the industrial world, during the past year, the growth of research on and production of new plastics, textiles, solvents, and lacquers has been impressive," Dr. Hamor says. "Spurred by economic and social alterations of almost general scope, scientific investigation has found many missing links in the genealogies of synthetic resins and synthetic fibers. These discoveries have added to the changes wrought by their forerunners in the synthetic dye industry because of their requirements for different types of colors from those formerly made.

"The progress of research in the synthetic organic chemical industries of the leading countries has effected improvements in the technologies of cellulose, petroleum, detergents, pharmaceuticals, and photography. It has also contributed to the advancement of knowledge in the apparatus, plant equipment, electrochemical, heavy chemical, agricultural chemical, and food fields.

"In 1938 scientific investigation continued to make available novel and superior constructional materials. In the United States alone some seventy such products were introduced, and, in addition, the composition and properties of many previously known alloys and other engineering materials were bettered by research work."

Johns-Manville Completes New Virginia Plant

BY

H. P. Fessenden*

DUE to the increasing cost and difficulty in obtaining a satisfactory supply of pulp wood for the manufacture of wood fiber products, the Johns-Manville Corporation engineering department conducted an extensive search for a reliable source of material which would produce a fiber board of as a high a quality as that being made at their Oswego, N. Y., plant. The search was not confined to the United States and Canada alone but also included Cuba, Finland and Hawaii. Such factors as shipping facilities, sources of labor, and the possibility of future expansion all required consideration in order to meet the increasing demands for this firm's products.

Experiments with many different pulp woods, in a laboratory controlled pilot plant, finally showed that a fiber board, superior to the present product, could be made from Southern pine. An investigation of the available sources for this material, together with the other factors entering into a satisfactory site for a new plant, convinced the executives of the corporation that the state of Virginia offered more advantages than any other location considered. A site at Jarratt on the Virginian R. R. and near the A. C. L. R. R. was finally chosen as the most satisfactory, being located in the immediate vicinity of extensive growths of suitable timber, with an adequate source of local labor and sufficient area to allow for many year's expansion.

The plant was designed by the Stone and Webster Engineering Corporation who also supervised construction of the buildings which include one for pulp preparation 180 by 240 feet and 30 feet clear under the roof trusses with a machine bay 80 by 40 feet; a dryer building 44 by 520 feet and 20 feet high; and a finishing and storage building 240 by 480 feet and 20 feet high.

A wood storage area of approximately three acres has been provided at the west end of the property to accommodate a sufficient amount of pulp wood to prevent interruption of production during periods when the weather might interfere with the bringing in of a continuous supply to the plant. This raw material will be delivered primarily by trucks, but provision has been made so that a track for railway shipments may be made at a future date. Pulp wood is reclaimed from the storage area with a portable conveyor running on wheels and extending the entire length of the storage yard. From this conveyor the pulp wood is transferred to another conveyor and carried to a slasher building at which point the logs are cut into uniform lengths. A conveying system from this building carries the waste products, consisting primarily of sawdust, to a hog fuel storage bin. From the slasher building the pulp wood travels to a barking drum, where the bark is removed. The refuse from the barking drum is also conveyed to the hog fuel storage bin.

The logs are reduced to pulp which goes to one of two concrete stock tanks, each approximately 60 feet long, 20 feet wide and 15 feet deep, where the material is thoroughly agitated and hydrated. From the first stock tank the pulp is pumped to a second chest where the necessary sizing ingredients are added. From this size chest the pulp goes to a head box and from this point to a continuous forming machine at the end of which is a wet saw.

The cut sheets are transferred from the wet saw by an automatic feeder to a 8-deck continuous dryer approximately 500 feet long and when the material reaches the finishing and storage building it is completely dried and ready for finishing.

Many different products are manufactured from the basic fibre board and this is accomplished by means of saw tables, sizing machines, mills, branding machines and other similar equipment. Finished products are then passed over an inspection table and are wrapped in stock packages, labeled and stored in the storage portion of the building. From this point material may be readily loaded in either freight cars or trucks for distribution.

A covered storage platform at the south side of the building adjacent to the railroad siding has been constructed of sufficient width so that carload or truckload shipments may be assembled near the building wall and still allow sufficient space for trucking to and from the carrier. The platform is of concrete at car floor height and is protected by a cantilever canopy which is a continuation of the main building trusses. This canopy extends to the far side of the railroad track with a vertical apron so as to provide adequate weather protection for the loading of material into cars. The use of a cantilever canopy, rather than the common type of simple structure which has exterior posts, avoids the hazards of injury to railway employees due to the absence of foundations and structure

(*Continued on page* 56)

*Structural Engineer, Stone & Webster Engineering Corporation.

Missouri Offers Vast Mineral Deposits For Diversified Industry

MISSOURI, popularly known as the "Ozark State" was first explored by De Soto about the time 1541-42, and was visited by Marquette in 1673. Originally settled by the French, Missouri formed part of the Louisiana Purchase and was admitted to statehood in the Union in 1821 after a bitterly fought political debacle between representatives of the North and South. The bone of contention centered around the admissable entrance of a slave state which culminated in the now famous "Missouri Compromise." The present state boundaries were not established till 1836.

With a total area of 69,420 square miles of which 68,727 square miles are land area, Missouri ranks 18th in size. The population of 3,975,000 however, places this state in tenth place while the density is slightly more than 52 to the square mile. The negro population comprises only about six per cent.

Climate

THE climate of Missouri, though essentially continental and is characterized by a rather wide range of temperature and variation in amount of precipitation, has never been the cause of a total failure of any crop grown in the state. On the contrary the extremes of climate are not nearly so pronounced as in the more northerly states while the southeastern section is closely related to the South. The average annual temperature is about 55.3° Fah. ranging from a low average of 30.8° Fah. tor the coldest months to 77.5° Fah. average in the warmest. The average snowfall is slightly above 17 inches and killing frosts seldom start before the middle of October and cease before the end of April. The average annual precipitation of 40.58 inches varies from an average 36.72 inches in the north to 43.69 in the southeast.

Transportation

USUALLY regarded as the gateway between the North and South, Missouri's ample transportation facilities lend emphasis to this reputation providing extensive service not only throughout the state but also to virtually every part of the nation.

The railroads, with a total mileage close to 8,000 miles and operated by some 25 major lines, have large terminals in both St. Louis and Kansas City where trunk lines to the Atlantic and Pacific seaboards provide constant communication for passenger and freight traffic. In addition, adequate wharfage is available at both of these cities for the large river traffic passing up and down the Mississippi and Missouri rivers to points north and to New Orleans on the Gulf Coast where ocean transport is readily obtainable.

Though railroads and navigable waterways offer extensive transportation facilities, highways have not been neglected as a medium for freight and passenger service. At the close of 1938 the state highway system had completed or under contract no less than 15,344 miles, of which approximately 7,500 miles are classified as major roads. Hard surface highways including concrete, brick and bituminous treatments cover over 6,570 miles and granular surfaced roads add about 8,400 miles more.

Finally, air transport also provides extensive passenger facilities throughout the state and country, due in large part to the air terminals on the east and western state boundaries.

Manufactures and Finance

ACCORDING to the 1935 census, the value of Missouri's manufactured products was $1,205,876,699, representing an increase of $424,692,359 or more than 33 per cent over the 1933 amount of $881,184,340. In only two of the state's 114 counties is manufacturing not conducted.

Although 81 of the 128 different industries listed separately in the census reports each manufacture products in excess of one million dollars annually, there are additional industries consisting of only one or two plants for which separate figures are not given and which, in many instances, have a larger output than many of those listed.

Of the industries shown separately, meat and poultry packing rank first with products valued at $111,817,682. Other important industries include: boots and shoes, $85,475,985; flour and grain mill products, $60,819,845; clothing, $57,861,070; printing and publishing, $54,721,992; electrical machinery, equipment, etc., $34,792,164; butter, $26,285,915; paints and varnishes, $23,220,758; machinery and machine shops, $22,714,533; malt liquors, $22,611,177; drugs and medicines, $20,882,892; electric and steam railroad cars and repairs, $16,405,413; and prepared feeds for animals and fowls, $15,554,616.

The cost of materials, containers, fuel and purchased electric energy used in all Missouri industries totaled $748,384,997 in 1935. And in the state's 4,408 establishments, 162,144 employees had a payroll of $159,554,616.

According to the Missouri State Commissioner of Labor and Industrial Inspection, the total value of manufactured goods in 1937 was $1,654,269,371 of which $951,157,743 was the value of goods shipped out of the state. Raw materials used in the process of manufacturing was valued at $994,748,146. Salaries for the 248,820 employees in 4,511 reporting firms amounted to $346,193,811. Total capital invested was $915,908,967.

In 1937, there were 668 banks which reported to the Comptroller of the Currency and had a capital stock including capital notes and debentures of $87,935,000. Aggregate resources totaled $1,531,523,000 of which $1,359,459,000 was individual deposits. Savings deposits in all banks amounted to $277,232,000 while the total transactions of reporting clearing house exchanges was $10,460,601,000. Both individual deposits and savings deposits increased approximately ten million dollars from the previous year.

Agriculture

IMPORTANT as industry is in Missouri, agriculture occupies an equally important part with almost a third of the population classified as farm residents while only about a quarter million people are engaged in manufacturing.

In 1937 the total cash farm income amounted to $262,110,000 made up of $75,786,000 from crops and $173,026,000 from live-

stock and livestock products. This compares with a total of $251,864,000 for 1936, a gain in 1937 of more than $10,000,000. The aggregate farm crop acreage was 12,572,000 acres.

The principal crops in 1937 were: wheat yielding 41,207,000 bushels with a cash income of $34,400,000 from 3,100,000 acres; $14,000,000 from 404,000 bales of lint cotton and $2,300,000 from 179,000 tons of cottonseed; $4,600,000 from 115,020,000 bushels of corn; and $850,000 from 43,400,000 bushels of oats. Other important crops were tobacco, sweet potatoes, orchard and market crops.

The number of livestock in Missouri in 1937 was 7,312,000 valued at $187,761,000, the largest item being 2,497,000 cattle valued at $86,570,000. Cash farm income from dairy produce was $66,957,000. Factory production of butter was valued at $26,285,915 in 1935 and amounted to 74,214,000 pounds in 1936 while cheese totaled 11,570,000 pounds and condensed, evaporated and powdered milk were 4,394,000, 43,537,000, and 12,961,000 pounds respectively.

Timber

MISSOURI occupies an important position as a producer of hardwoods. Of a total forest area of 16,500,000 acres, saw timber occupies well over 3,150,000 acres and carries a stand of saw timber estimated in 1930 (the latest year for which statistics are available) at 3,689,000,000 board feet including 289,000,000 board feet of softwoods and 3,400,000,000 board feet of hardwoods.

The timber species common to Missouri include oaks, gums, ash, maple, sycamore, elm, birch, beech, black walnut, pecan, together with some cypress and shortleaf pine.

In 1936 the total lumber sawed amounted to 80,720,000 board feet of which 60,433,000 board feet was hardwood and 20,287,000 board feet was softwood. The quality of Missouri hardwood is evidenced by the fact that the average price per 1,000 feet at the mill in 1936 was $28.43 compared with the national average of $27.92.

Mining and Minerals

MINERALOGICALLY, Missouri is one of the most important states in the country and possesses the distinction of being the source of our first lead ore mine. Production of lead in 1937 exceeded 154,000 tons.

On the accompanying map are shown those minerals which are at present being commercially produced. However, this represents only part of the picture for many new deposits of these same minerals are being put into production from year to year. In addition, other deposits and minerals are in process of investigation with satisfactory prospects in view.

Rock wool, one of the most progressive of present day mineral industries, is likely to become a flourishing industry in Missouri as a result of surveys in St. Louis and Pike counties where Sedalia limestone with the proper chemical composition has been found in a central formation with outcroppings adjacent to the railroads.

Another potential source of development lies in the western counties where oil and gas are already being produced. During recent years much development has taken place with shallow fields and it is anticipated that completion of detailed plane table surveys will result in heavier producing deeper wells as well as more extensive fields.

In southeast Missouri undeveloped clay deposits have been known for many years. Recently these have been investigated and preliminary results indicate the possibility of commercial production of ceramic and bleaching clays.

The occurrence of strontium bearing minerals is also being explored but commercial utilization has not yet been satisfactorily demonstrated.

Cobalt and nickel ores together with copper and silver are all produced in Missouri but are mainly extracted in the course of smelting of concentrates of other minerals. Cobalt, copper and nickel occur in small percentages in a large tonnage of complex ore in Madison county.

Sandstone of an attractive color and found in riprapping the Missouri river banks is used as a decorative rock on residence and similar type buildings but is no longer used for general building purposes because of its friability.

Electric Power

APART from the electric power facilities dependent upon the generating capacity of plants located within the state, Missouri is assured of ample supplies through the extensive network of systems connecting with adjoining states.

The 108 plants operated by 66 companies in the state together have a generating capacity of 745,310 kilowatts made up of 35 steam power plants capable of 551,809 kilowatts, seven hydroelectric plants with a capacity of 150,545 kilowatts, 64 internal combustion engine plants with 40,796 kilowatt capacity and two combination engine plants with a capacity of 2,160 kilowatts.

Production of electric power in Missouri during 1937 amounted to 1,872,464,000 kilowatt hours including 1,292,552,000 kilowatt hours produced by fuels and 579,912,000 kilowatt hours produced by water power.

Taxation

THE corporation franchise tax of Missouri provides that all domestic corporations shall pay an annual tax equal to one-twentieth of one per cent of the par value of its outstanding stock and surplus. Foreign corporations are required to pay a like amount on such of its capital stock and surplus as may be employed within the state.

The state tax rate, which at present is 15 cents per $100, is based upon assessment of all real and personal property. There is a constitutional limit of 50 cents per $100 for county levies and a similar limit of 65 cents per $100 for the school district tax. Manufacturers are assessed upon all raw materials and finished products as well as upon tools, machinery and appliances. The assessed value of all taxable property in 1937 was $3,797,473,075.

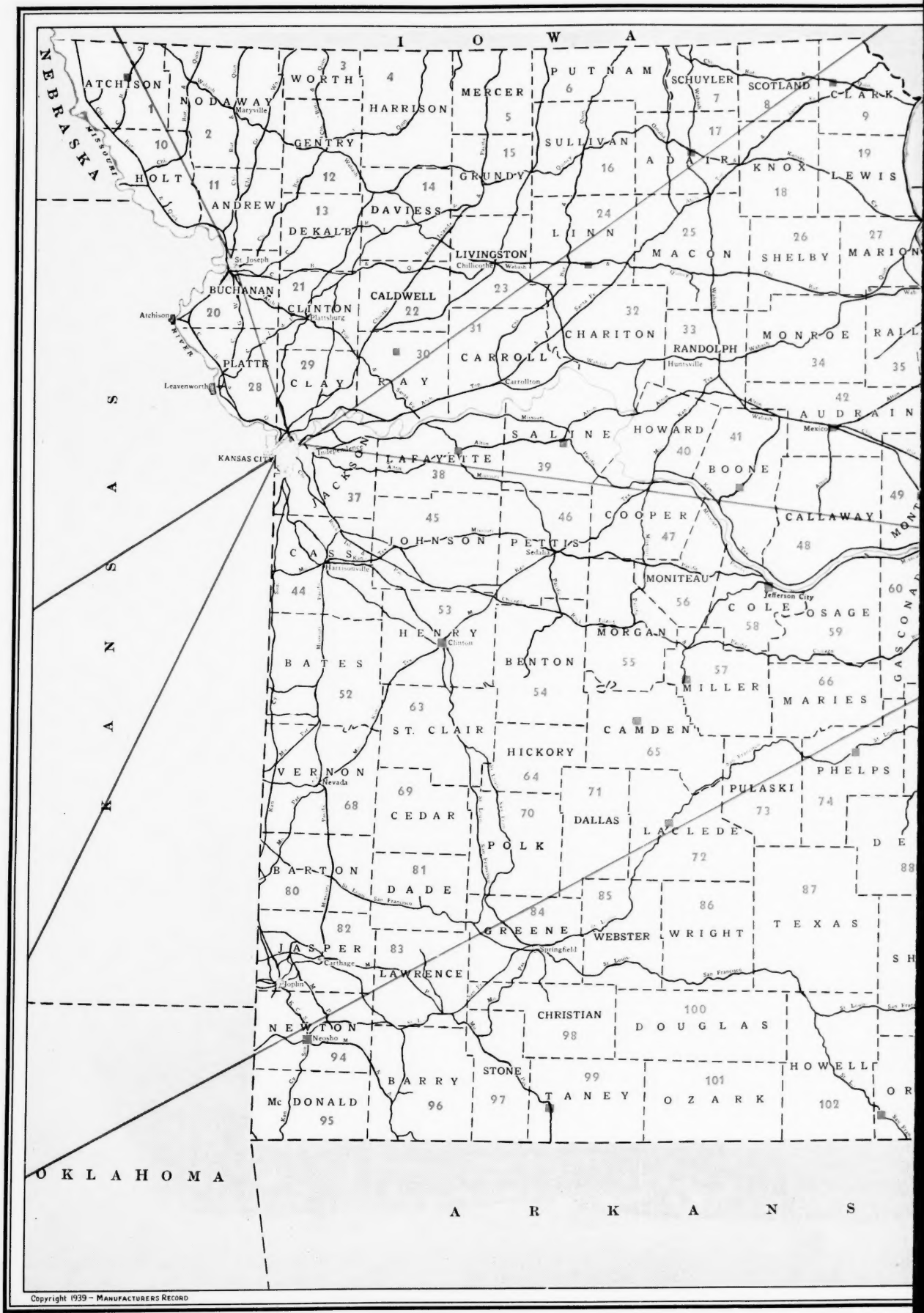
The state income tax is graduated from one per cent on less than $1,000 to four per cent on $9,000 and over. From the $1,000 and over taxable base there is a permissable deduction from the amount of the tax varying from $5 to $135 according to the rate of tax payable.

The total Federal internal revenue tax receipts for the calendar year 1937 were $133,107,995 of which $58,443,686 represented income tax.

Labor and Wages

ALTHOUGH, according to the 1930 census, Missouri has four cities with a population exceeding 50,000 inhabitants—St. Louis, 821,960; Kansas City, 399,746; St. Joseph, 80,935; and Springfield, 57,527, and the urban population is approximately 51 per cent, the rest of the population is evenly distributed in this state where the density is only 52 to the square mile. Nearly 82 per cent of Missouri's white population is of native American parentage and only 4.4 per cent are foreign born. Less than 14 per cent are of foreign stock.

Because of the great diversity of employment conditions in manufacturing together with the number of industries and the variety of locations, it is virtually impossible to arrive at any useful conclusion regarding average wage rates or even the range of wage rates. However, in view of the fact that almost every county supports some industries and there are many nearby populous centers, there is usually an abundance of labor for all purposes.



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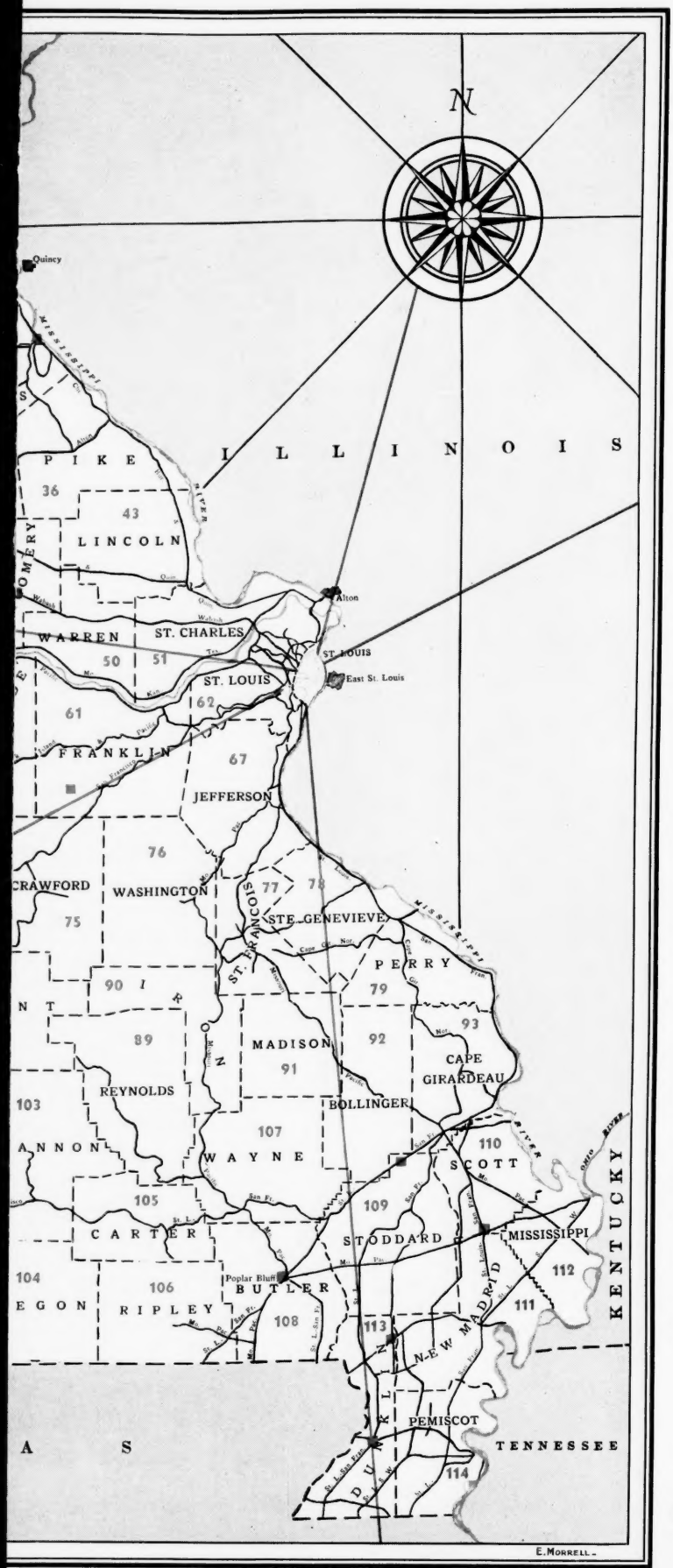


MISSOURI

Its principal raw materials and transportation facilities offering opportunities for industry, with additional facts on the reverse side pertaining to industry and its growth within the state.

Minerals	Counties in which material is commercially produced
Asphaltic sandstone	68, 69, 80
Barytes	55, 56, 57, 58, 61, 64, 65, 67, 75, 76, 77
Clay	37, 42, 48, 49, 50, 58, 59, 60, 61, 62, 66, 74, 75
Coal	1, 5, 6, 7, 11, 15, 16, 17, 22, 23, 24, 25, 28, 29, 30, 31, 32, 33, 34, 35, 38, 39, 40, 41, 42, 43, 45, 48, 50, 52, 53, 63, 68, 69, 80, 81, 82
Fuller's earth	109, 110
Granite	90
Iron ore	60, 61, 66, 73, 74, 75, 87, 88, 90, 91, 92, 102, 103, 104, 104, 106, 107, 108
Lead	76, 77, 82, 83, 84, 91, 94, 98
Lime	27, 35, 36, 78, 82, 83, 84, 96
Limestone	19, 27, 35, 36, 37, 41, 43, 46, 47, 62, 78, 84, 93
Marble	78, 82, 84
Natural gas	37
Petroleum	44
Portland cement	35, 37, 62, 93
Pyrites	61, 73, 74, 75, 90, 91
Sand and gravel	19, 27, 36, 37, 58, 61, 62, 67, 74, 92
Tripoli	94
Zinc	82, 83, 84, 94, 98

Cobalt, nickel and copper ores together with silver are all extracted in the process of smelting other ores. Sandstone also is obtained along the Missouri river banks.

Timber*

Upland hardwoods—30, 51, 54, 55, 57, 59 to 67, 70 to 79, 83 to 88, 91 to 101
Shortleaf pine-oak type—76, 87 to 92, 100 to 108
Cypress, gum and bottomland hardwoods—92, 93, 108 to 114

***The survey of Missouri timber resources is not yet available covering the northern and western parts of the state where farming is conducted on an intensive scale.**

Natural gas is available for consumption in the following counties—17, 20, 27, 28, 29, 36, 37, 38, 39, 44, 45, 46, 47, 58, 67, 68, 77, 82, 83, 84, 91, 94, 96, 98, 108

———Railroads
———Navigable waterways
———Airlines
■ Airports—also at principal cities printed in red

44th ANNUAL STATEMENT *as of December 31, 1938 of the*

Kansas City Life Insurance Company

KANSAS CITY
MISSOURI

ASSETS

Cash in Banks	$ 997,529.91
*Bonds—	
Federal Government	31,764,384.12
State, County, Municipal and School	15,521,050.05
Railroad, Public Utility and Others	213,209.51
First Mortgage Real Estate Loans—	
On Farm Property	11,770,981.92
On City Property	8,510,826.92
F. H. A. Loans on City Property (Insured and Guaranteed by U. S. Government)	2,203,360.98
Loans on Policies (Secured by Legal Reserve)	20,528,859.01
Collateral Loans	22,772.34
Accrued Interest on Investments	1,195,123.22
Contracts of Sale of Real Estate	850,914.34
Farm Properties Owned	7,162,645.42
City Properties Owned	3,632,195.57
Home Office Building	1,340,132.50
Net Premiums Deferred and in Course of Collection (Secured by Legal Reserve on Policies)	2,753,074.75
Total Net Admitted Assets	$108,467,060.56

LIABILITIES

Legal Reserve (Present Value of Every Policy Obligation)	$ 99,042,056.00
Claims Due and Unpaid	None
Incompleted Policy Claims (Claims incurred on which proofs have not been filed or completed)	438,480.66
Dividends Payable on Policies	943,426.36
Interest and Premiums Paid in Advance	649,182.55
Set Aside for Taxes Payable in 1939	250,000.00
Other Accrued Expenses	122,474.44
Surplus Unassigned	6,021,440.55
Paid-Up Capital	1,000,000.00
Total	$108,467,060.56

**If all Bonds were valued at market price, over* $1,500,000 *would be added to the Unassigned Surplus shown above. Hence the total Surplus to Policyholders, which includes the Company's Capital of* $1,000,000.00, *is approximately* $8,500,000.00.

INSURANCE IN FORCE $443,055,919

An All-Southern Meeting

AT the invitation of Lawrence Wood Robert, Jr., Executive Director of the Southeastern Governors' Conference, a significant meeting of Southern Governors, Senators, Representatives and businessmen was held in Washington on Friday, January 20th. As a completely Southern gathering, it was originally planned for January 19th, the anniversary of Robert E. Lee's birthday. The purpose of the meeting was to unify Southern opinion about what should be done to help the South's industrial growth and to proceed along definite lines to do something about it. Mr. Robert opened the meeting by vigorously denying that the South offered the Nation a problem of any kind, but rather that it was the Nation's economic opportunity number one, and it was in this spirit that this group of 65 leading Southerners had been invited to meet together.

The South's first objective, as presented by Governor Rivers, Chairman of the Conference, Representative Ramspeck of Georgia and Donald Comer, Chairman of the Avondale Mills, is to equalize freight rates which at the present offer a trade barrier for many products manufactured in the South, for which there is a market in other parts of the country. The group went on record in favor of high wage levels, consistent with profitable operations, but pointed out that this was only possible to a desirable extent if artificial trade barriers, such as the present freight rate schedule, are removed.

Mr. Comer has made quite a study of the Southern freight rate situation and an interesting article of his on this subject will appear in an early issue of the MANUFACTURERS RECORD.

COLORING CONCRETE FLOORS—
Folder, illustrated, describing a new and important method of coloring concrete floors, known as the Colormix-KuroKrome Method, which insures an economical, durable and attractive finish.
The Master Builders Company, Cleveland, Ohio.

SEWERAGE WORKS—
Booklet — "Financing Sewerage Works," presenting pertinent data, with a general discussion of the subject of sewer rentals and the application of this method of service charge to revenue bond financing.
Portland Cement Association, 33 West Grand Avenue, Chicago, Ill.

MARSHALL, Missouri
Offers Outstanding Advantages to Industries.

J. C. Patterson, Mgr., Marshall Chamber of Commerce

Marshall, population 8,500, county seat of Saline county, the leading agricultural county of the middle West. Ideal climate. Plentiful native born labor and an industrial building of 50,000 square feet, modern daylight construction, now available. Municipally owned electric and water plants with ample power at low industrial rates; and low tax and insurance rates. Has modern recreation advantages with a new $125,000 swimming pool located in the 110-acre Indian Foothills Park, ample transportation facilities including major highways, two railroads and a new Government airport. An outstanding public school system—Missouri Valley College, fully accredited and co-educational, with 40-acre campus; and an excellent parochial academy. The business interests are progressive and cooperative and welcome your inquiry.

The Industrial Development of the Southwest

BY

M. S. Sloan

Chairman of the Board, Missouri-Kansas-Texas Railroad Company

M. S. Sloan

THE economic and social characteristics of the Southwest are undergoing vast change—scarcely predictable a few years ago. Extractive agriculture is giving way to more intensive farming; population centers are developing at a rapid rate; mineral resources are being converted locally into highly refined products; manufacturing plants are being established throughout the area, not only to take care of local consumption, but also for marketing throughout the nation and, to a certain degree, in foreign countries; the restriction of cotton acreage in Texas and Oklahoma is forcing the growing of new crops, necessitating new flour, grain, and feed mills, and stimulating research into new chemical uses for agricultural crops; and the limiting of wheat and corn acreage is similarly affecting agriculture in the northern portions of the Southwest area.

The extent and importance of urbanization are as yet little realized even locally.

The Southwest is no longer rural, nor does agriculture longer dominate employment or railroad freight tonnages. For example, in 1900 only seventeen per cent of the population of Texas was urban. This ratio had increased to forty-one per cent in 1930. The next census, in 1940, will probably show a nearly even distribution between city and country for the nearly seven millions of people who will then be living in Texas. At the last census, more than half the population of Missouri, and more than one-third of the populations of Kansas and Oklahoma, were living in cities. Of those gainfully employed in Texas, sixty per cent were employed on farms in 1910. This proportion had dropped to thirty-eight per cent by 1930. While the total population of the State was increasing by two million, those employed in agriculture decreased one hundred thousand; but the proportion of the whole population gainfully employed remained about constant. Trade, industry, services, and the professions—typically urban activities—absorbed the surpluses, which amounted to a million and one hundred thousand employed persons.

This change in characteristics is further measured by an examination of the freight tonnage statistics of the Katy Railroad, which is a more or less typical Southwestern railroad, and was built, originally, as an agricultural and live stock line. Today, fifty-five per cent of the total tonnage originated on-line is of manufactured products, including the manufactures of agricultural, mineral, and forest products.

In each of the four Katy-served States—Missouri, Kansas, Texas and Oklahoma, the annual value of manufactures already exceeds the gross income from agricultural production—crops and live stock—by a wide margin. In 1935, for the four states combined, value of manufactures exceeded gross agricultural income by $825,000,000. The value of mineral production exceeded that of agriculture in Texas and Oklahoma by about fifty per cent; and the mineral industry is a large factor in the creation of new wealth in both Kansas and Missouri. Iron and lead ores, it may be remembered, were the basic raw materials for Missouri's earliest industries, the development of which has finally led St. Louis into a prominent position as an iron and steel, chemical, and paint and pigment producing center. Statistically and historically, however, the Southwest still is in its infancy as a manufacturing area.

People make markets, particularly when concentrated into urban centers and when supported by a rich background of agriculture and mining, creating the wealth with which manufactured goods can be purchased. In this respect the Southwest is a most favored section. The present annual growth of population for the four States is estimated at 120,000—equivalent to the addition of one good sized city like Erie, Pennsylvania; Gary, Indiana; or Elizabeth, New Jersey; each year.

Industry is attracted to the Southwest for a variety of reasons besides local consumer demand. Among these may be mentioned:

Raw materials from the farm, the mine, the forest, and the sea.

Abundant and cheap power.

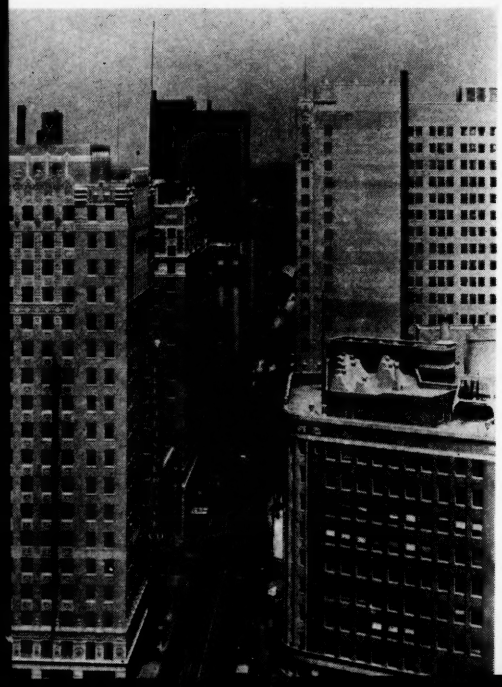
Plentiful labor, though largely untrained, but comparatively less expensive than in the North and East.

Low labor costs, supported by low living costs, due to an abundance of local food stuffs, long growing seasons, an equitable and mild climate, and comparatively inexpensive housing.

Low overhead costs, generally much lower than in the North, due to low building costs, low prices of land, low taxes, and favorable corporate laws.

Excellent rail and water transporta-

A Texas Cow Town Goes Modern—West Seventh Street, Fort Worth.



tion, making the world a market through a series of modern ports.

In raw materials, Texas and Oklahoma produce more than twenty per cent of the nation's entire mineral output, measured by value; and, with Missouri and Kansas, produce fifteen per cent of the national value of crops and live stock; although the four states, with twelve per cent of the population, produce only seven per cent of the country's manufactured products. The total population of New England is slightly less than that of Texas and Oklahoma combined. New England's population density is six times that of Texas, and it produces approximately one-third more manufactures than the four Southwestern states. Yet, Texas alone has an agricultural production double that of the combined six New England states, and its mineral production is thirty times that of New England. Measured by per capita production, further comparison with New England emphasizes the extent to which industries may be reasonably expanded in the Southwest. New England's production of manufactured goods aggregates $465 per capita, as compared with $209 for the Southwest, and $175 for Texas. The raw materials of fisheries, farms, and mines, however, amount to $160 per capita for the Southwest, and $185 for Texas, as compared with $33 for New England. There is no reason why the Southwest should not ultimately equal or exceed the New England ratio of manufactured products.

The Southwest is truly an empire of raw materials, presenting a golden opportunity and markets for a large expansion of manufacturing. Principal mineral raw materials, besides petroleum and gas, include coal and lignite; asphaltic stone; glass, moulding, and foundry sand; sulphur; salt; gypsum; filter and bleaching clays; abrasive materials; graphite; ceramic and fire clays; kaolin; glauconite; building and chemical stone; cement shales; fertilizer and insulation materials, including woolrock and asbestos; and carbon black. Metallic minerals include lead, zinc and iron ores, cinnabar, copper pyrites, paint materials, and chromite.

Forest materials include timber for furniture, paper making, and construction; as well as for other wood products.

The Gulf of Mexico furnishes the Coastal Area with shrimp, crabs, oysters and fish; and shell for lime and cement manufacture.

Agriculture, varied from sub-tropical to temperate, furnishes grains, cotton and cotton seed, broom corn, sorghums and sugar cane, peanuts, pecans, meat animals, fats, hair, wool, hides, straw, poultry, milk and cream, fruits, berries, and vegetables, for the manufacture of foods, textiles, and chemicals, and for exploration into new fields of farm chemurgy.

The Katy Railroad, mindful of its opportunities to develop freight traffic through the acquisition of new industries and of its obligations to the communities it serves, has long maintained an industrial development program which, during the depression, was not curtailed, but was actually augmented by increased personnel. Also, large sums have been spent advertising the Southwest as a suitable location for industries. We have endeavored, in recent years, to serve industry by preparing specific and often highly technical locational reports.

Among recently acquired new industries, food and kindred industries include a million-dollar plant for Coca Cola, a large plant for Canada Dry, several meat packing and processing plants, three vinegar and pickle factories, a candy manufacturer, flour and feed mills, and cotton seed meal and oil mills.

Mineral industries include several petroleum refineries, a grinding plant, a galvanizing plant, a lead smelter, and factories for the manufacture of gypsum board, rock wool, and asphalt, and a quarry for terrazzo chips.

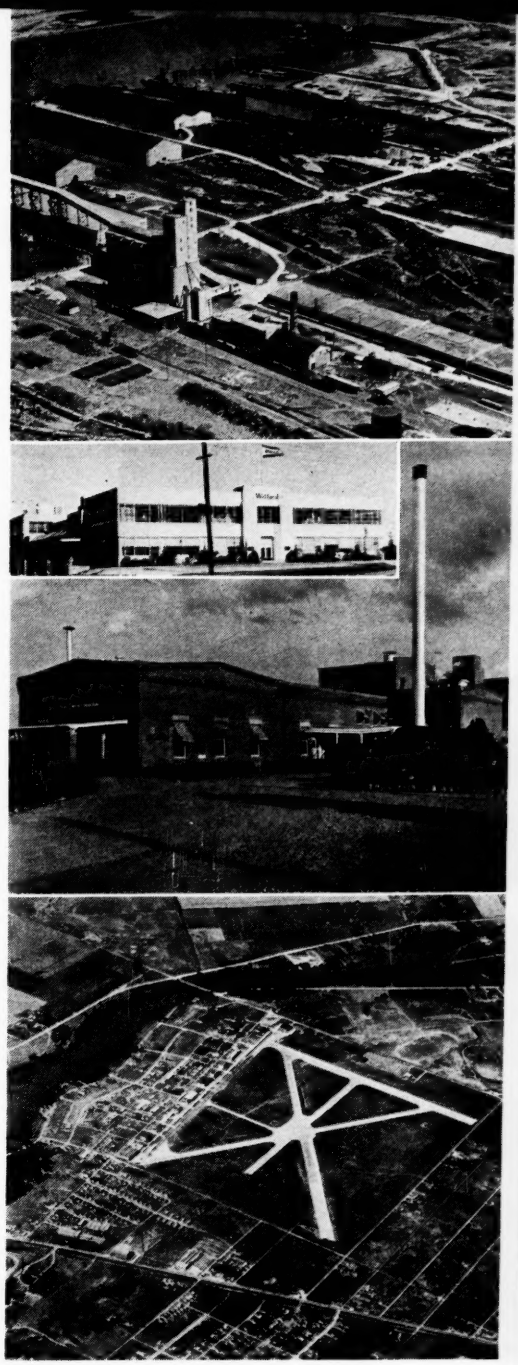
Chemical industries include fertilizer, industrial gases, and gun cotton.

A wide variety of miscellaneous industries include auto trailers, batteries, machine shops, furniture, gas heaters, firearms, and steel mills.

As industry begets industry, special mention should be made of oil wells supplies and refinery equipment. The rapid development of the petroleum industry has brought about the establishment of a large number of manufacturers and processors of oil well tools, derricks, tanks, valves, heat transformers, compressors, pumps, drilling muds, and the like. Many of these have come into Texas and Oklahoma from California, setting up a migration in reverse of ordinary East to West trends.

The recent development of organic chemical industries holds large promise for the Southwest, with its enormous reserves of petroleum, gas, and coal. The Carbide and Carbon Chemicals Corporation contemplates an expenditure of several millions of dollars for a plant at Texas City in the near future, having already acquired its site and completed arrangements for its port facilities and raw materials.

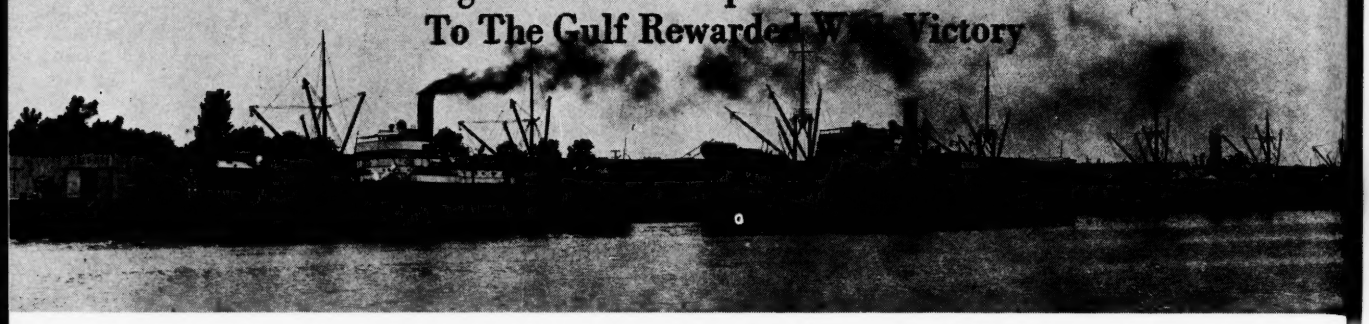
The people of the Southwest are interested in its industrial development. Capital seeking investment will find this area one of the richest sections in natural resources on earth, with markets of large purchasing power, with operating conditions ideal, power and labor costs low;—a most fertile field for profitable industrial operation.



Top—One of the modern Gulf Coast Ports —Terminals of the Texas City Terminal Railway Company, where Pan-American, Southport, Republic, and Stone Oil Company refineries are located; and where Carbide and Carbon Chemicals Corporation plant is to be erected. Center—Principal Texas plant of the Kraft-Phoenix Cheese Corp., Denison. Center inset—The Willard Battery Company's plant is one of six battery factories now located in Dallas. Bottom—Grouped around Love Field Airport in Dallas, Texas, is a large industrial district, where in addition to airlines and aircraft manufacturers, there is a great diversity of other industries including textiles, clay products, oil companies, paint manufacturers, bulk gasoline, etc.

A City Builds A Sea Port

Lake Charles, Louisiana's 60-year Fight For A Deep Water Channel To The Gulf Rewarded With Victory



The first wharf shed completed in 1926 gave the port a covered area of 42,000 square feet which was subsequently increased to 220,000 square feet and finally, the shed area has now been expanded to 450,000 square feet.

BY

Ernest Lee Jahncke

Executive Director, Louisiana State Department of Commerce & Industry

ON November 30, 1938, Lake Charles, Louisiana, observed with fitting celebration the beginning of the final step in its achievement of a 60-year-old ambition. On that day Governor Richard W. Leche, together with other Louisiana citizens, and officials of the United States Engineers, watched the start of the dredging of a deep water channel to run south from Lake Charles through the Calcasieu River, Calcasieu Lake, and into the Gulf of Mexico—a distance of 33 miles. With the completion of this channel, some time in 1941, Lake Charles will see the fulfillment of its generations-old desire to be a full-fledged world port, with facilities available 24 hours a day; and will become an even more important unit in the State of Louisiana's waterway system.

The city of Lake Charles, whose population today is 25,000, was recognized as a port as early as 1870, but then only small schooners came in from the Gulf, plying their trade in the Calcasieu River and the lakes below the city. At that time numerous sawmills were located on tide water along the river, and the output of these mills was exported both to American and foreign markets. But the building of the Southern Pacific Railroad through Lake Charles in 1879 sounded the death knell of this traffic, the mills moving up to the railroad, and lumber exports going to Port Isabel, Texas, and thence to foreign ports.

In 1887 J. B. Watkins, a pioneer railway builder in the South, extended the Watkins Railway into Lake Charles. A man of vision, Watkins' original idea was to continue this line down to the Gulf Coast, and make Calcasieu Pass his terminal point on deep water, but lack of funds caused him to abandon the plan.

In 1896 another railroad, the Kansas City Southern, sought to improve Calcasieu River and Pass to make Lake Charles a deep water port, and asked the city and surrounding territory to assist by voting a small bond issue. This attempt also was unsuccessful, but the idea persisted with officials of that road, and in 1906 and 1907 they made a reconnaisance survey of the area.

Following this, interest in the project increased, and the old Lake Charles Board of Trade gave serious consideration to the matter, preparing a map indicating a proposed route for the channel. Meanwhile civic leaders and the citizenry took up the cause, and from year to year, although numerous attempts to interest the Federal Government in the proposal failed, the deep water channel from Lake Charles to the Gulf remained a live issue.

The U. S. Engineers did not look favorably upon the plan at that time because of the heavy expense involved in construction of jetties in the Gulf, the heavy maintenance cost of a deep water pass into that body of water, and, too, because only 30 miles west of Calcasieu Pass lay the already navigable Sabine Pass which served the Texas ports of Beaumont and Houston.

It was proposed therefore that Lake Charles likewise connect with the Sabine Pass. This could be done by straightening the channel in the Calcasieu River in some places between the city and the Intracoastal Canal, a waterway running across South Louisiana from New Orleans to Orange, Texas, on the Sabine River. By widening and deepening the Canal from its intersection with the Calcasieu to its terminus, it would be possible to use the Sabine River itself as the last lap of the route to the Gulf. Facilitating this procedure was the fact that the Federal Government had offered to Lake Charles the use of its 300-foot right of way along the Calcasieu section of the Canal.

Accordingly, in 1922 the people of Calcasieu Parish, including the citizens of Lake Charles, voted approximately $3,000,000 for the work to begin immediately. Later another bond issue was voted to build the first dock unit. In constructing its own channel without Government assistance, Calcasieu and Lake Charles accomplished something entirely unique in the history of world commerce.

The first wharf shed gave the port a covered area of 42,000 square feet, but soon after its formal opening in 1926 it was apparent that the facilities were entirely inadequate. Therefore in 1927 another $500,000 bond issue was voted, the length of the wharves doubled, and the covered floor area for cargo was increased to 220,000 square feet. In 1930 there was again the necessity for expansion, and a $750,000 bond issue was used to increase the shed area to 450,000 square feet, and to construct eight additional miles of railway tracks and interplant switches.

Thus the city of Lake Charles, once visited only by minor craft, became, through admirable perseverance on the part of its people, and with the expenditure of approximately $7,500,000, a top-ranking seaport.

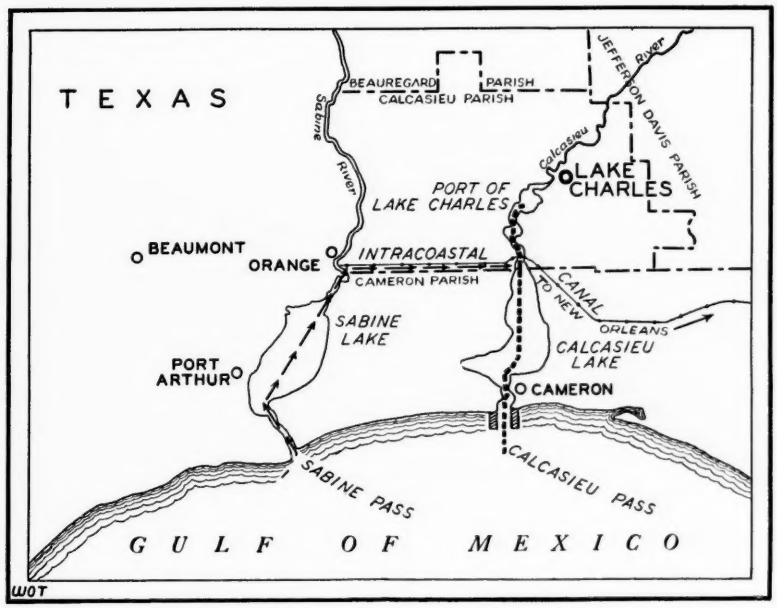
With this channel completed, industrial development along the Calcasieu River has been rapid. Almost a dozen large industrial firms have located there, their investments ranging from $100,000 to $750,000. These include: Kelly, Weber and Company, fertilizer docks; Continental Oil Company, tank terminal; The Mathieson Alkali Works, Inc., private terminal for handling caustic soda and soda ash; W. T. Burton, tanker terminal; Union Sulphur Company, tanker

docks and tank farm; Magnolia Petroleum Company, tanker facilities and storage farm; Shell Corporation, tank farm and tanker dock.

In 1937 more than 18,000,000 barrels of oil were exported from the soil terminals listed above. In 1926, the year of the port's opening, 45,000 tons of shipments valued at approximately $1,500,000 passed through Lake Charles. Only eight years later, in 1934, these figures had skyrocketed to nearly 2,000,000 tons of shipping valued at approximately $26,500,000. And for the year just past, 1938, 429 ships calling at the port carried 3,300,000 tons of cargo. This remarkable growth is complete justification of the vision and faith of those who foresaw for the city a great future in commerce.

But even with the signal achievement of its deep water port Lake Charles and its citizens are not content. Although ships can come into Lake Charles under their own power, it is found practical to bring them in only during daylight hours. As a consequence, a vessel desiring to touch at the city ordinarily ties up either at Sabine Pass or at Port Arthur overnight, necessitating an all-day trip.

The original idea of a channel running directly south to the Gulf—a distance of only 33 miles, as opposed to the 105-mile distance of the channel via the Sabine—was never given up. Many surveys were made, and hearings held by the U. S. Engineers both locally and before the Engineer Board in Washington. Early in 1937 the District Engineer was convinced that the project was meritorious. In July of that year it received the approval of the Chief of Engineers in Washington; a bill was introduced and successfully passed, and appropriation made at the last session of Congress for $9,300,000. The bill carries an appropriation of $1,900,000 for this year's work.



The above map illustrates the position of Lake Charles in relation to the new channel, the Intracoastal Canal, and the Gulf of Mexico.

On completion of the long-sought channel, ships enroute to Lake Charles, instead of navigating a congested course, will be enabled to come through a straight waterway which is tangent from just below Lake Charles to the Gulf. As there is no bar off Calcasieu Pass, and as the new channel will have a bottom width of 250 feet, and a depth of 32 feet, ships will be able safely to enter at any time of day or night. The entire trip in and out will be completed in 10 hours.

It was this saving of time for both ships and shippers that made it apparent to Federal authorities that the project was indeed feasible, and that the saving to the people was sufficient to amortize the investment in a reasonable period of time. The channel also will fully open the vast mineral, cattle, and rice lands of Southwest Louisiana to world trade. Construction of the channel should be completed in a little more than two years.

When that time comes there will be climaxed the long and persistent battle of Lake Charles to realize a worthy ambition. Overcoming physical difficulties and numerous objections, and taking financial hurdles in stride have all been a part of the good fight. But with the completion of the dredging Lake Charles will be in every sense of the word a world port—with adequate facilities to meet all future needs.

The people of Lake Charles can then take pride in a job well done—and will be entitled to a well-earned rest. But looking back over their accomplishment—a task that has taken well over three-score years—it is doubtful that they will rest. Not so long as there are other laurels for Lake Charles to win.

The full extent of the wharf shed's storage capacity can be gauged from these views of rice (at left) and cotton bales awaiting shipment. Lake Charles is in the heart of the rice country.

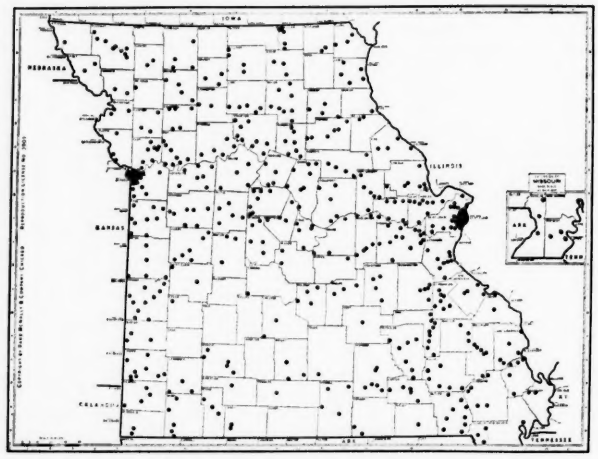
Railroads Pay Out More Than $2,000,000 Weekly in Missouri

MISSOURI, with its principal cities St. Louis and Kansas City, two of the country's greater railway centers, has some 25 large and 27 small railway companies operating approximately 8,000 miles of track and in 1937 received $108,000,000 from the country's Class I railroads for materials, supplies, fuel, equipment, labor and taxes.

The importance of the railroads as customers of Missouri industries is illustrated by the fact that in 1937, a year of light railway buying, expenditures by some, but not all, of the railroads for fuel, material and supplies in Missouri totaled $28,400,500, and their expenditures for freight cars and other equipment amounted to $9,600,400, bringing the total for these items up to $38,000,900. Large as this sum is however, it is by no means all the railroads spent in Missouri during the year. It does not include expenditures by Class I railroads for miscellaneous items such as water, telephone service, electricity, rentals, advertising, payments to contractors, and so on, nor does it include expenditures of any sort by Class II and Class III railroads, or by switching and terminal companies, the Pullman Company, the Railway Express Agency, the Pacific Fruit Express and other transportation companies closely allied with the railway industry. If all expenditures of all railroads and affiliated companies were included, the figure would probably be several million dollars more than that shown above.

The widespread distribution of railway purchases in Missouri is indicated by the fact that some, but not all, of the railroads reported that in 1937 they purchased materials and supplies in 471 cities and towns in 105 of the state's 114 counties.

Practically every railroad in the United States is a buyer of Missouri products. According to an analysis by the *Railway Age*, ninety-nine Class I railway companies in the United States, out of 100 canvassed, reported purchases of fuel, materials, supplies or equipment in Missouri during 1937. Of these, six were in New England, twenty in the Great Lakes region, thirteen in the East Central region, four in the Pocahontas region, sixteen in the South, fourteen in the Northwest region, fifteen in the Central Western region, and eleven in the Southwest. Seventy-five of the ninety-nine do not own or operate mileage in the state.



Railroad purchases of materials and supplies are made in 471 cities and towns in 105 of the state's 114 counties.

One large Western railroad, located hundreds of miles distant from Missouri, spent $654,000 in the state for materials and supplies and $725,000 for new equipment in 1937. Another Western railroad having no mileage in Missouri spent $542,000 in the state. As might be expected, however, Missouri's home railroads are by far her best customers. Twenty-three railway companies, owning approximately 93 per cent of the railroad mileage of Missouri, reported purchases in the state aggregating $32,546,000 in 1937. Seventy-six non-resident railroads and the Pullman Company are known to have spent $5,523,000 in Missouri during the year.

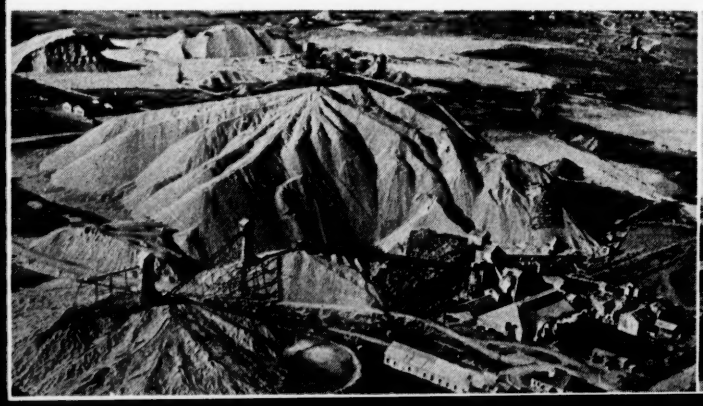
Among the numerous items on the 1937 railway shopping list in Missouri were petroleum products, lumber, cross ties, bridge ties, piling, shingles, fence posts, iron and steel products, iron, copper and brass castings, car fittings and parts, locomotive accessories, shop machinery and parts, machine tools, wire rope and steel cable, roller bearings, glass, tire plates, roofing materials, bolts, nuts, washers, plumbing fixtures, car wheels, electric cable, electrical equipment, rubber products, cotton goods, paints and varnishes, cement, freight cars and car parts, and bituminous coal. The railroads also spend large sums in Missouri for water, ice, electricity, rentals, insurance, stationery and printing, telephone service and advertising.

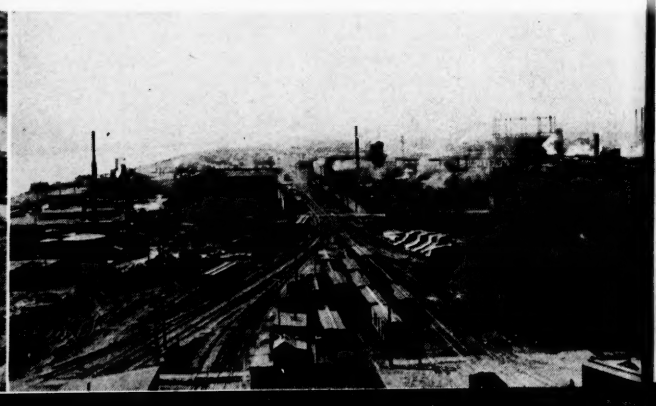
Even more widespread than railway purchases in Missouri is the distribution of railway taxes. In 1937 Class I railway taxes in Missouri totaled $4,151,400. The amount of taxes paid by twenty-odd smaller railroads and switching and terminal companies is not known, but their payments would probably increase the figure to upwards of $4,500,000.

The latest comprehensive breakdown of railway tax payments in Missouri showed that approximately 71 per cent went to county government, 17 per cent to cities and incorporated towns, and 11

(*Continued on page* 60)

Left—An ore mill in southwest Missouri typical of many from which the railroads haul thousands of tons annually. Right—View of the extensive railroad yards at St. Louis.





South's Construction Strong

$73,076,000 January total above monthly average for 1938

CONSTRUCTION in the South returned to a normal level during January, with a $73,076,000 total of contracts as reported in the daily issues of CONSTRUCTION, showing a thirty-seven per cent drop from the Public Works-inflated figure of the preceding month. Compared with January of last year, however, the total is twenty-three per cent ahead.

Decreases from the December totals occurred in all fields—both private and public. A sixteen per cent decline in private building was the lowest of all; the forty-six per cent drop in industrial construction, the highest. Public building and highway and bridge contracts each dwindled thirty per cent; public engineering projects, twenty-five per cent.

With December of 1938 an abnormally good month for construction because of the rush to get projects financed by the Public Works Administration under the deadline, January of 1939 is not to be considered as a bad period because of its lower total. The figure is, in fact, much better than the similar month of last year and also above the average monthly total for 1938.

Comparing the types of work in the two Januaries, those for 1939 are mainly ahead or equal. Private building is running about thirty-nine per cent above, with road and bridge construction topping what it was last year. Public building totals forty-three per cent more, public engineering projects being about the same. Industrial construction, however, has slumped forty-six per cent, a drop which leaves the total just above that for February 1938, when such work ebbed to its low point.

The private building total of $14,891,000 is made up mostly of residential building contracts. Apartments, hotels and dwellings, amounted to $10,223,000. Commercial buildings, such as stores, restaurants, filling stations, etc., aggregated $2,505,000; assembly buildings, including churches, theatres and auditoriums, $1,556,000; and office buildings, $607,000.

Public building contracts totaled $21,565,000. As more than one-half of this amount is represented by schools, which are a carry-over from the intensive December activity under the Public Works Administration, the January total for public building construction, with exception of slum clearance projects, is expected to mark the beginning of a decline in this field, unless additional Federal inflationary construction funds are provided.

Road construction, if January's total is indicative, has again made a good start with its $16,896,000. Many of the sixteen southern States and the District of Columbia were active in this line. Texas' $7,219,000 total, Mississippi's $2,455,000, West Virginia's $2,026,000 and Alabama's $1,311,000 were the four largest. No reports of awards or bid openings were received from either Kentucky or South Carolina.

Rail contracts were dominant in January, especially in the South, with several lines making important awards to southern steel works. The Southern, St. Louis & San Francisco, Seaboard Air Line and Southern Pacific were among these, with the Tennessee Coal, Iron and Railroad Co., U. S. Steel subsidiary at Birmingham, receiving sizable orders. Missouri Pacific announced its program, as did the Norfolk & Western. The Virginian plans $350,000 pier improvements at Norfolk, and the Louisville & Nashville made the steel award for roundhouse alterations at Louisville.

Duke Power Co. started actual construction on its $7,500,000 power plant development, near Cliffside, N. C., where two 50,000-kilovolt-ampere units will be installed. Virginia Electric & Power Co. is proceeding on a $3,000,000 addition to its Twelfth Street station at Richmond. Additional awards were made in connection with the $3,600,000 addition to the Westport plant of the Consolidated Gas, Electric Light and Power Co., Baltimore. Louisiana Steam Generating Co., Baton Rouge, and the Southwestern Gas & Electric Co., Shreveport, La., also have worked recently on large expansion projects. The $12,000,000 Radford, Va., hydro project of the Appalachian Electric Power-American Gas & Electric combination is now well along toward completion.

Weirton Steel Co., a National Steel affiliate, is beginning a $250,000 metallurgical and chemical research laboratory at Weirton, W. Va. Jones & Laughlin Steel Corp., of Pittsburgh, was reported to be planning a river terminal at Chattanooga, Tenn., involving an investment of $100,000. An official announcement, however, states that studies of distribution facilities are being made but nothing definite is contemplated. Truscon Steel, a subsidiary of Republic Steel, which has just

(*Continued on page* 36)

Statistics of the South's Construction

January, 1939

	Contracts Awarded	Contracts to be Awarded
PRIVATE CONSTRUCTION		
BUILDING		
Assembly (churches, theatres, auditoriums, fraternal)	$1,556,000	$2,938,000
Commercial (stores, restaurants, filling stations, garages, etc.)	2,505,000	5,310,000
Residential (apartments, hotels, dwellings)	10,223,000	4,247,000
Office	607,000	500,000
	$14,891,000	$12,995,000
INDUSTRIAL	$4,939,000	$31,074,000
PUBLIC CONSTRUCTION		
BUILDING		
City, County, State and Federal	$9,156,000	$25,224,000
Housing	875,000	5,802,000
Schools	11,534,000	13,723,000
	$21,565,000	$44,749,000
ENGINEERING		
Dams, Drainage, Earthwork, Airports	$5,568,000	$58,203,000
Rural, County and Municipal Electric	5,390,000	24,899,000
Sewers and Waterworks	3,827,000	8,928,000
	$14,785,000	$92,030,000
ROADS, STREETS AND BRIDGES	$16,896,000	$21,511,000
TOTAL	$73,076,000	$202,359,000

"Statistics of the South's Construction" beginning with January have been rearranged, so that private contracts may be more easily distinguished from public work. The building classification under the main head of PRIVATE CONSTRUCTION includes the types used previously, with the addition of filling stations under the commercial sub-head. Industrial work, which formerly was listed under "Industrial and Engineering" is now under PRIVATE CONSTRUCTION. PUBLIC CONSTRUCTION in the future will be divided into BUILDING, ENGINEERING. In the former will be the usual Government projects plus housing. ENGINEERING will embrace all public work of this character. ROADS, STREETS AND BRIDGES, as before, are tabulated separately.

completed important additions at Gadsden, Ala., is constructing a new mesh and fabric plant at that point.

Fort Worth, Tex., was the scene of a significant development in the aircraft industry. Announcement was made of plans for constructing a factory by the National Aircraft Corp. Military planes are to be produced. The plant will cover 87,700 square feet. Glenn L. Martin, Baltimore manufacturer, is spending $250,000 for a 500-acre air field.

Additional facts were revealed about the $10,000,000 plant to be erected at Pearisburg, Va., by the Celanese Corp. of America. The layout will include two 3-story brick dwellings, each 452 by 270 feet, with construction scheduled to start April 1. Important spinning machine contracts were awarded by the American Additions in prospect for the Cedartown and Cartersville, Ga., mills of the Goodyear Tire & Rubber Co. are being held in abeyance, according to officials of the company, who also point out that a reported $3,000,000 expansion of Goodyear's Gadsden, Ala., plant is not proposed.

Viscose Corp. for its new Front Royal, Va., plant. What construction of a $15,000,000 plant of this kind means to a town such as Front Royal with its original population of several thousand is evidenced by the steps taken by the town council to hold an election on bond issues for water and sewer improvements needed as the result of approximately 6,000 workers being required by the operations.

Bibb Manufacturing Co., Porterdale, Ga., plans addition of 100,000 square feet to its Osprey mill and installation of 250 looms. Charles H. Bacon Co., Loudon, Tenn., proposes a full-fashioned hosiery plant. Vanette Hosiery Mills, Dallas, Tex., are erecting an addition to cost about $250,000 with equipment. Rock Hill Finishing & Printing Co., Rock Hill, S. C., received bids for a 180 by 380-foot unit.

Mid-Continent Petroleum Corp., Tulsa, Okla., let the contract for a pipeline to connect with its present crude oil transportation system. Work was started on a gathering system in Winkler County, Texas, by the Texas-New Mexico Pipe Line Co. An application was made by the Louisiana-Nevada Transit Co. for permission to build a natural gas pipe line from Webster Parish, Louisiana, to Okay, in Arkansas. Dixie Pipeline Co. started on pipelines from the Magnolia field to Houston, Tex. James B. Wright proposed a 2,000-barrel daily capacity refinery at Magnolia, Ark. Atlantic Refining Co. plans reconstruction of its Port Arthur, Tex., polymerization unit.

Two newsprint manufacturing plants, in addition to the $6,000,000 one for which ground was broken January 14 at Lufkin, Tex., are said to be proposed for the South. A statement credited to James G. Stahlman, publisher of the Nashville Banner and president of the American Newspaper Publishers Association, indicates that these are planned. Both Georgia and Mississippi have been mentioned in the past as possible locations for such factories. Bids are understood to have been opened by the Electro-Metallurgical Co. for buildings as part of its $5,000,000 plant at Muscle Shoals, Ala. The structures include office, stores, locker and furnace facilities. American Cyanamid & Chemical Corp. is going forward with preparations to construct a new plant at Georgetown, S. C. Work will be done principally by force account.

The site for the proposed $1,000,000 Federal research laboratory in the South has definitely been decided upon. It will be located on a 40-acre tract on Robert E. Lee Boulevard, New Orleans. Plans for the buildings are now being drawn and construction should begin within a few months. Initial investigations will concern cotton, sweet potatoes and peanuts.

The Pinopolis lock, dam and power plant of the $37,000,000 Santee-Cooper project now being carried out by the South Carolina Public Service Authority are covered by bids to be opened February 28. Equipment contracts totaling several million dollars have already been awarded. The Grand River Dam Authority, Vinita, Okla., will open bids February 14 for a transmission line contract as part of a $20,000,000 conservation and electric project in Oklahoma. Bids were opened for equipment for the $6,500,000 High Point, N. C., municipal hydro-electric project, and also by the lower Colorado River Authority in connection with the $12,000,000 Marshall Ford dam now under construction near Austin, Texas.

Important January Contracts

Ala., University—University of Alabama; engineering shop, Comer Hall alterations; Batson-Cook Co., West Point, Ga. $163,000

Ark., Mena—Mena Water Works, Frank L. Lewis; improvements; Ottinger Bros., Hinton, Okla., Contr. 109,000

D. C., Washington—Paul T. Stone, Inc.; apartment; Stone & Warwick Construction Co., Contr.... 750,000

Fla., Miami Beach—J. A. Jones Construction Co., Charlotte, N. C., Gen. Contr.; housing project, Belle Island; Paist & Steward, Miami, Archts. 500,000

Ga., Augusta—Southern Bell Telephone & Telegraph Co.; dial office building; Potter & Shackleford, Inc., Greenville, S. C., Contr.... 183,000

Ky., Frankfort — Department of Highways; State office building superstructure; Skilton Construction Co., Louisville, Contr. 450,000

La., Monroe—Monroe Furniture Co.; Building; Caldwell Brothers & Hart, New Orleans, (low bidder), J. W. Smith & Associates, Archts. 138,000

Md., Baltimore—Property Sales Co.; dwellings; owner builds; Kenneth C. Miller, Archt. 176,000

Md., Jessups—State Board of Welfare; women's penal institution; John McShain, Inc., Baltimore, Contr.; Henry G. Perring & Co., Baltimore, Archts. 314,000

Md., Westminster—Western Maryland College; field house, men's dormitory; Thomas Hicks & Son, Baltimore, Contr.; O. Eugene Adams, Baltimore, Archt. 200,000

Miss., Sardis — War Department; furnishing gravel, and placing rip-rap for upstream slope of Sardis Dam, Panola County; Forcum-James Co., Dyersburg, Tenn., Contr. 634,000

175,000 Cu. Yds. of stone for rip rap; J. L. Shieley Co., St. Paul, Minn., Contr. 236,000

Mo., Richmond Heights — Owner, care of Shuchart Realty Co.; theatre; Sol Abrahams & Son Construction Co., Contr.; Robert O. Boller, Kansas City, Archt. 150,000

Mo., St. Louis—Cole Chemical Co.; office and laboratory building; S. C. Mulligardt & E. C. Hartman, Inc., Contrs. 100,000

Mo., St. Louis—H. B. Deal, Bldr. and Associates and Preston J. Bradshaw, Archt.; 600-family apartment on West side of Lucas and Hunt Rd.; owners build.... 3,400,000

N. C., Chapel Hill—North Carolina College of Agriculture & Engineering of University of North Carolina; textile building; J. A. Jones Construction Co., Charlotte, N. C., (low bidder); J. E. Sirrine and Co., Greenville, S. C., Engrs.; George Watts Carr, Durham, Archt. 263,000

N. C., Goldsboro—Goldsboro State Hospital; main building, building for male insane patients; T. A. Loving & Co., Goldsboro, Contr.; Atwood & Weeks, Inc., Archts. Engrs., Durham; Wiley & Wilson, Mech. Engrs., Lynchburg, Va. .. 380,000

N. C., High Point—City; turbines for hydro-electric project, Baldwin-Southwark Corp., Philadelphia, Pa., (low bidder); 283,000

clearing reservoir, Blythe Brothers, Charlotte, and E. W. Grannis, Fayetteville, (low bidders) 292,000

N. C., Lenoir—City; sewage disposal plant; Northeastern Construction Co., Winston Salem, Contr. 169,000

Okla., Miami—Barnsdall Tripoli Corporation, Seneca, Mo.; plant including crusher, tube mill, drier, screens; Muskogee Iron Works, Muskogee, Contr. 100,000

Okla., Norman—Cleveland County; courthouse; Tankersley Construction Co., Oklahoma City, Contr.; Walter T. Vahlberg, Archt., Oklahoma City 195,000

Important January Projects in Proposed Stage

Ala., Birmingham — Birmingham Housing Authority, Elyton Village Project; 860 Units, D. O. Whilldin, Archt. $3,500,000

Fla., Miami—Dade County Commissioners; public auditorium; Edmund Friedman, County Engr. 650,000

Ga., Atlanta—Western Electric Co., Leo A. Davies, Mgr.; warehouse and garage; W. R. Kattelle, Engr. 500,000

La., Lake Charles—Gulf States Utilities Co., John True, Vice Pres. & Gen. Mgr.; building and electrical substation improvements.. 150,000

La., Shreveport—A. L. Alexander, Shreveport, M. F. Fooshee, Dallas, Tex. and associates; 14 apartment buildings 500,000

Maryland — Washington Suburban Sanitary Commission; program to improve sewer and water facilities in Montgomery and Prince George counties 1,366,000

S. C., Charleston — Eugene M. Schmetzer, 2-story apartment house. 500,000

Tenn., Chattanooga—Electric Power Board; overhead lines 375,000

Tex., Beaumont—Southwestern Bell Telephone, N. A. West, Dist. Mgr.; building, install equipment 1,000,000

Tex., San Antonio — Constructing Quartermaster; construction program at Kelly Field 2,500,000

Va., Roanoke—Veterans Administration; 300-bed unit at Veterans' Hospital 350,000

W. Va., Clarksburg—Hope Natural Gas Co., H. C. Cooper, Pres., Pittsburgh, Pa.; Office building 175,000

W. Va., Huntington—U. S. Engineers; seven pumping stations; Huntington flood wall project... 250,000

CONFERENCE
TELEPHONE SERVICE
brings busy men together
any time—anywhere—inexpensively
This modern service makes it possible for men miles apart to talk things over as if they were face to face. Every one can hear and be heard. Direct, personal discussion prevents delays and misunderstandings. Questions are cleared up and decisions made quickly.
The scattered executive committee of a wool marketing association meets by telephone at 10% of the cost of a customary conference. . . .
The sales manager of a can company used a three-way hook-up with two customers —got permission to divert a shipment of cans from one to the other —and saved a bumper crop of tomatoes. . . . A brick company quotes prices and discusses terms with all of its dealers in the same territory at the same time by conference connection.
There are many other uses for Conference Service. The savings in time and money are obvious. Up to six telephones—more, by special arrangement—can be connected. Just ask Long Distance for the Conference operator.
BELL SYSTEM
AMERICAN TELEPHONE & TELEGRAPH CO. AND ASSOCIATED COMPANIES

Iron, Steel and Metal Market

AT the close of January steel operations were at 52.8 per cent of capacity according to the American Iron and Steel Institute.

There has been a gradual improvement in buying with railroad purchases likely to be made in larger volume. As relief for the railroads' situation is found there should be a growing demand for products of steel mills.

Automobile production has not reached the point which some expected, but with spring not far away buying from that source also should improve. It should be pointed out however that production of motor cars is at a much higher point than at the same period of last year. In the last week of January the output was more than 90,000 cars compared with 65,000 for the same week a year ago.

The largest representative of the steel industry—the U. S. Steel Corporation—showed a profit in the last three months of last year of $4,394,450 which is gratifying as there was overcome a deficit of $5,847,790 incurred in the quarter preceding.

Chairman Stettinius said in his report that only in three of the last ten years were lower tonnages shipped than the total for 1938.

Buyers have continued in a hesitating mood and this probably has been accentuated by rumors that prices were weakening. There have been repeated denials that this has been the case and the probability is that buying has hesitated more because of lack of confidence and what government is going to do than from any other cause.

Birmingham Outlook Is Good

Birmingham has been a bright spot in the steel picture, continuing its operations at a high point, which have reached 80 per cent of capacity. There is a decidedly bright outlook here due to larger orders from railroads and other causes. More than 80,000 tons of rails have been ordered and it is anticipated that additional orders will soon be placed for over 20,000 tons. The Southern Railway has purchased 25,000 tons; Seaboard Air Line 8,000 tons; Mobile & Ohio 3,500 tons; Nashville, Chattanooga & St. Louis 6,500 tons; Frisco 12,500 tons; Central of Georgia 2,500 tons.

Besides rail orders there is a gratifying volume of business in wire products, bars, plates and miscellaneous steel.

Sheet mills are operating at capacity both at Birmingham and Gadsden. Those conversant with the situation point out that the greater part of the orders placed at Birmingham are being consumed and are not for inventory purposes.

Double shift operations are in prospect at the Wenonah ore mines, evidencing the growing demand for pig iron and steel which places a majority of the TCI ore mines on double schedule of operations. Both the TCI and Republic blast furnaces are operating full.

Rail Orders Improve

The total estimated contracts for rails placed by the railroads with steel mills in various centers the first three weeks of January is estimated at approximately 250,000 tons. Compared with the entire month of January a year ago when orders for 65,000 tons were placed, this is a notable increase. In the entire year of 1938 orders were placed for about 400,000 tons of rails.

Car manufacturers are anticipating better business in the near future. Among the roads contemplating extensive purchases of both passenger and freight cars are the Union Pacific, Missouri Pacific, Denver & Rio Grande, Pittsburgh & West Virginia, Delaware, Lackawanna & Western, and others.

Equipment builders are encouraged to believe that orders for freight cars will be materially increased over 1938, which showed a total of only about 16,000 of such cars ordered. This was less than one-third of what was bought the year before. With the increase in carloadings it is fair to assume the expectation of more car orders will be realized.

Bethlehem Steel booked in the last week of January more than 45,000 tons of heavy steel, including 16,000 tons of sheets, 14,000 tons of reinforcing steel and 5,000 tons of plates for the Metropolitan Water Supply Commission of Boston. Besides this there were orders for 6,000 tons of structural steel and 2,100 tons of reinforcing steel.

The American Bridge Co. had an order for 1,900 tons from a stock yard in Indianapolis, and the Virginia Bridge Co. had a Texas highway bridge calling for 1,000 tons.

American Rolling Mill secured a contract from the Cincinnati Water Works requiring 1,100 tons of their products.

Government Contract Wage Rates

Bethlehem Steel Corporation, it was stated by President Grace at a recent meeting of the directors, has been given an additional time of 60 days to study the question of minimum wages to be paid on government contracts under the Walsh-Healy law. These rates vary from 45 cents an hour in the Southern states to 62½ cents an hour in the East. This was later changed to 45 cents for the South and 62½ cents for the rest of the country. The same extension was granted a number of smaller steel companies. The rates at Bethlehem at present are 56½ cents to 59½ cents an hour.

Mr. Grace, objecting to the rates fixed by the Department of Labor "which in a vast majority of cases are above those prevailing in these localities," called attention to the company's plant at Sparrows Point, which was grouped by the Labor Department with plants as far west as Chicago in all of which territory a 62½ cent minimum hour wage was fixed, whereas Baltimore "is below the Mason-Dixon line in territory usually designated as part of the South." He pointed out that the company has large distribution in the South and it was necessary to compete with Southern mills which are in territory in which the minimum wage of 45 cents was set.

He gave it as his opinion "the determination as required by law has not been made in the finding of rates which now exist. Instead I think the determination was the fixing of a new scale of wages in the various districts which the law does not intend. The Department of Labor was instructed by law to find the wage rates and was instructed to see they were adhered to on government contracts. It has not been rate-finding; rather it has been rate fixing."

IF IT'S OUT OF DOORS

Make it of Beth-Cu-Loy Sheets

Double defense against rust for less than 5 per cent extra cost

IN Beth-Cu-Loy galvanized steel sheets a durable zinc coating is backed up by rust-resisting, copper-bearing steel. According to tests by the American Society for Testing Materials, steel of the composition used in Beth-Cu-Loy lasts about three times as long as ordinary steel, and twice as long as open-hearth iron, when exposed to the weather. This means that even if the protective coating gets damaged rust is definitely retarded when Beth-Cu-Loy Sheets are used.

This rust-resistance in the steel base is of particular importance in locations where sulphur-laden smoke creates extreme conditions of atmospheric corrosion. The slight additional cost of the sheets is negligible in the total cost of the job.

Some other Bethlehem Products of particular interest to Southern Industry:

Steel Pipe—with many plus factors.

Fabricated Steel Structures of all types

Steel Plates and Flanged Products

Tool Steels—A complete range, covering every requirement.

Open-Web Steel Joists—for fire resistive, shrinkage-free floors.

Reinforcing Steel and Road Steel

Structural Shapes—Wide-Flanged Sections for heavy construction; Light Sections for economical use of steel where loads are light.

Wire Rope

BETHLEHEM STEEL

BETHLEHEM STEEL COMPANY

Lumber

News *of the Month*

Lumber Production Above 1938

Production of lumber for the week ended January 28 was 55 per cent of the 1929 weekly average according to the National Lumber Manufacturers Association while shipments stood at 64 per cent of the 1929 average. These figures represent approximately 30 per cent and 11 per cent respectively above the corresponding week's figures of 1938. However, they were also three per cent and one per cent respectively below the previous week of this year. New orders were six per cent less than for the preceding week and one per cent under the corresponding week of 1938.

Meeting to Discuss Grading Rules for Southern Pine

A meeting of the Southern Pine Association Grading Committee to consider proposals and suggestions for changes or modifications of the official grading rules for Southern Pine, will be held in New Orleans, February 15 and 16. Mr. W. T. Murray, Rochelle, La., chairman of the committee, will preside and all Southern pine manufacturers are invited.

For several weeks past suggestions have been requested from lumber manufacturers and dealers for changes in the grading rules, and these proposals will be considered along with others submitted engineers, specifiers and builders. The purpose of any modifications that may be made is to improve the quality of lumber produced under the specifications and to better serve the needs and requirements of Southern pine users.

Florida Timber Depleted

In comparison with an annual net growth of 138 million board feet of pine, 68 million board feet of hardwoods and 17 million board feet of cypress, the commodity drain through cutting for various purposes in northeastern Florida was found to be 210 million board feet of pine, 79 million board feet of hardwoods and 136 million board feet of cypress, according to a recent report of the U. S. Southern Forest Survey.

The total area comprises some 9,515,000 acres of which almost a million acres are unforested and of the entire forest area only 30 per cent received the benefit of organized fire control in 1938. Fire, together with wasteful naval stores practices of the past and inadequate reforestation are described as among the principal causes of the present situation.

With a good forest practice program, the timber stands of this part of Florida could be returned to their full production, but the state's timber wealth is in serious jeopardy unless present cutting policies are changed.

Radio in Fire Control

The loss from fire on some 225,000 acres of Suwanee forest land was only 40 acres in 1937 whereas the annual loss amounted to about 7,000 acres prior to the use of radio as an aid in controlling forest fires. During 1934 and 1935 when drought conditions prevailed, the average loss was 600 acres each year and this fell to 60 acres in 1936.

Such facts were made public recently when W. M. Oettmeier, forest manager of Superior Products Co., spoke before the third annual Southern Pine Loggers' Meeting at Shamrock, Florida.

The first authorization for the use of radio by private concerns for fire control was granted by the Federal Communications Commission to the Superior Pine Products Company of Fargo, Georgia, in 1934. Now there are seven similar stations covering an area of 200,000 to 500,000 acres.

Requirements in connection with the use of radio in fire control are (1) station license and specific frequency, (2) government licensed operator and (3) the station must keep within the stated limits of its frequency. Fifty watts of antenna power provides for a radius of 15 to 25 miles and 100 watts up to 40 miles. The maximum power permissible for this type of work is 500 watts.

Southern Pine Association Meeting

The 24th annual meeting of the Southern Pine Association will be held at the Roosevelt Hotel, New Orleans, from March 22 to 24.

Mr. H. C. Berckes, secretary-manager of the Association states the coming meeting promises to be one of the most important held by Southern pine manufacturers in the last decade, because of a number of matters of vital concern to the industry which will be considered and acted upon.

Among the subjects are: progress of the grade-marked lumber program and plans for its further intensive promotion; proposals for changes in the industry's official grading rules; ways and means by which pine manufacturers may take full advantage of opportunities afforded for enlarged business brought about by the projected increase in building activities; effects of the federal wage-hour law on the industry and other legislative and governmental proposals affecting lumbermen; trade promotion; and lumber marketing problems under present day conditions.

The first day will be devoted to sessions of the board of directors and permanent committees, and the general sessions will be held on the following two days.

More Southern Paper Mills Expected

"It is almost certain that each of the Southern states will get at least one white paper mill out of the 40 or 50 that will probably be built in the South in the next few years," stated Donald R. Brewster, field director of the Herty Foundation in discussing the request that each of ten Southern states contribute $10,000 for support of the Foundation laboratory.

Mr. Brewster went on to point out that the annual receipts from the gas tax alone required to haul the necessary wood to supply a 250-ton white paper mill would approximate $12,000. Citing this as but one single item, and then referring to the many indirect tax receipts to be expected, Mr. Brewster continued, "A low estimate would be five per cent of the annual value of the products of the mill which would be around $5,000,000, and that would mean $250,000 in taxes for the state each year."

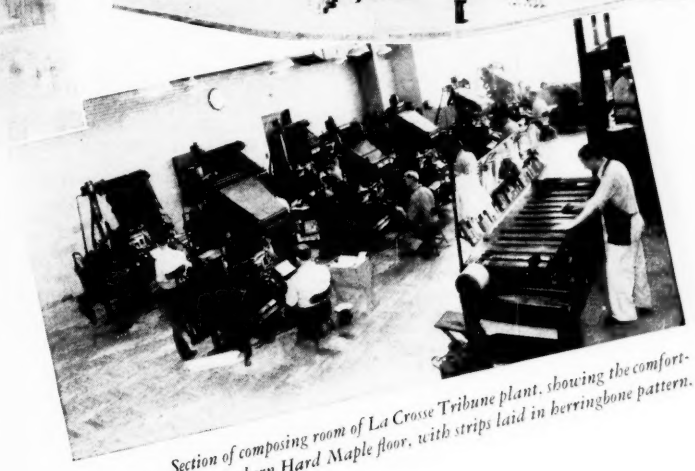
Alabama Planting Season

The Alabama Forestry Commission has announced that the state season for planting which started December 15 will continue through March 15. Those people wishing to obtain seedlings from the state nursery near Livingston may do so by requesting an application form from the State Forester at Montgomery. The price of seedlings is $2 per thousand f. o. b. destination.

. . . Again the *floors* are *Hard Maple*

Printers and publishers know the benefit of modern daylight plants. Northern Hard Maple is used extensively in this new building of the La Crosse, Wisconsin, Tribune and Leader-Press.

The press-stereotype room, also, is floored with economical, long-wearing **MFMA** *Northern Hard Maple.*



Section of composing room of La Crosse Tribune plant, showing the comfortable Northern Hard Maple floor, with strips laid in herringbone pattern.

Old in proven service...

*New** in modern utility

* Northern Hard Maple's long-proven economy is well known to engineers. But NEW factors, as well, influence their special interest in Hard Maple for modern plants.

This flooring builds both efficiency and contentment. Trucks and men move quickly over its smooth, resilient surface. Warm and dry, clean and sanitary, it protects health as it reduces fatigue. Its bright, cheery appearance warms up the cold business of industrial production.

A brute for punishment, it is yet the most friendly flooring to workmen—a pleasant, wholesome contribution to contentment, that can influence the whole character of an industrial plant. This, while giving management the lowest of costs for maintenance, for cleaning and per-year-of-service.

When you build or remodel, investigate this longest-wearing comfortable flooring—**MFMA**** Northern Hard Maple, in strips or blocks.

MAPLE FLOORING MANUFACTURERS ASSOCIATION
1797 McCormick Building, Chicago, Illinois

See our catalog data in Sweet's, Sec. 11/77. Write for photographic folder on Hard Maple Flooring and leaflet on heavy-duty finishes for old or new floors.

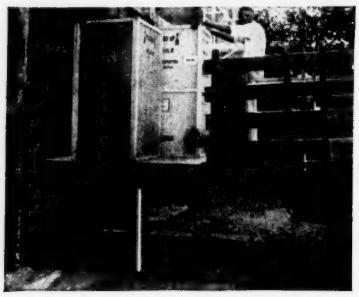
Look for the **MFMA trademark, indented and stamped on the wood. It assures association guaranteed grading and supervision, of the flooring you buy.

Floor with **MFMA Maple**
(NORTHERN HARD)

New Ways of Doing Things

Elevating Devices for Material Handling

New devices for material handling between floors in manufacturing plants, where a comparatively short rise is involved (a travel of 30 feet or less), has been announced by the Rotary Lift Company of Memphis, Tenn. These devices, which eliminate ramps between different plant levels, load materials into the back of trucks and freight cars, eliminate hand feeding or awkward overhead crane feeding of heavy materials into presses, etc., are clean cut in that all extraneous material, such as cables, counterweights, brakes, dogs and clutches, heavy load-bearing side walls and other space-taking



The Rotary Levelator in Action

accessories have been eliminated. In their lowered position, the units, with a travel of 5 feet or less, form a part of the floor or loading platform, permitting ordinary traffic to run over them, thus saving space. Although the Oildraulic Electric Elevator, employing an electric pumping mechanism, is the most popular equipment, air operation is declared to be very satisfactory for certain applications. The units may be controlled by hand lever at the power unit, by the pull of a rope, or by push buttons conveniently located. LEVELATORS and TABELATORS are the trade names given the devices. An accompanying illustration shows the Rotary Levelator in use by the General Electric Supply Company of Memphis, used to load and unload refrigerators, wire reels, large fans, motors, etc.

Plymouth Direct Drive Diesel Switch Engine

Plymouth Locomotive Works, division of The Fate-Root-Heath Company, Plymouth, Ohio, prominent builders of gasoline, Diesel and propane-butane locomotives for industrial and railroad service, have developed, with the assistance of the Inland Steel Company, Indiana Harbor, Indiana, the first direct drive heavy duty Diesel locomotive which is available in sizes from 45 to 70 tons in weight. With the rapidly increasing use of Diesel locomotives for switching and other services, replacing steam locomotives, there has been a demand for the flexibly operated direct drive Diesel.

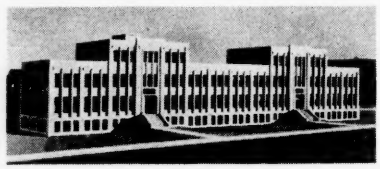
The new Plymouth locomotive, known as the Flexomotive, is ruggedly built and has excited much interest, especially on the part of steel mill operators who use large numbers of switching locomotives. As substantiating this statement, George Kirtley, sales manager of Plymouth Locomotive Works, announces that the company has been justified in building several of the Flexomotives, most of which have already been ordered. Low first cost, safety with full visibility for one man operation, and low operating cost are declared to be inherent in the design of the unit.

The principle of the Plymouth Flexomotive is that of the planetary drive. With two of the planetary units four speeds are secured forward and reverse. The 45-ton Flexomotive is equipped with a Cooper-Bessemer Model EN, heavy duty, Diesel engine having cylinders 8 by 10½ inches and developing 340 horsepower at 850 R.P.M. Model EN is made by the Cooper-Bessemer Corporation of Mt. Vernon, Ohio.

Barber Asphalt Moves Offices

In the interest of efficiency and economy, the Barber Asphalt Corporation has completed the construction of additional office facilities at its plant at Barber, N. J., at a cost of approximately $250,000, and will move its general offices from Philadelphia to Barber. This move, according to James E. Auten, president of the corporation, means that the management and operation will be more closely co-ordinated, in anticipation of improved economic conditions generally and increased business, specifically, for Barber Asphalt. Outlays already made, it is declared, are possibly only the forerunner of additional and larger expenditures.

The new building doubles the present office space, and, with the addition, is 259 feet long, with a 50-foot depth, giving a total of 42,000 square feet. It is on State street in the northern section of Perth Amboy. The laboratory staff will be transferred from the second floor to the ground floor where additional equipment has been installed. First floor will be occupied by plant executives and sales organizations; the second floor by the accounting and auditing departments and treasurer's staff, and the third floor by executive officers.

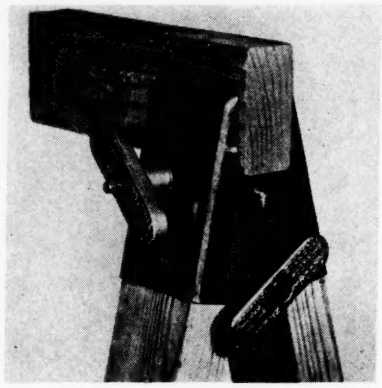


Barber Asphalt Corporation plant at Barber, N. J.

Three distinct operations are included at the New Jersey site—asphalt refinery, oil refinery, and roofing manufacturing plant—spread over about 275 acres. Pier facilities have been provided, with 30 feet of water for liners and tankers, and railway facilities are available. There are approximately 750 employees in the three plants, while the office force will number between 125 and 130.

Anchor Horse Heads

Dedscribed as "the joint with the alligator jaw," a horse head made by the Anchor Manufacturing Company, 2131 South Christiana Avenue, Chicago, Ill., is declared to be an outstanding improvement in wooden horses. It is simple to assemble and requires no drilling, nailing or planing when put into service. The only requirement is to cut 2 by 4s to desired lengths, slip them into steel pockets and fasten hinge bolt which tightens the legs and prevents loosening. The mouth is then opened for inserting the top ridge. By tightening the cross bolt the steel alligator-like teeth dig into the top ridge, and as the load gets heavier the teeth bite deeper. When knocking down for shipment, it is only necessary to loosen the cross bolt, take out the top ridge and fold together. The horse head may remain on the 2 by 4s. The device is practical, cuts shipping costs and saves time.



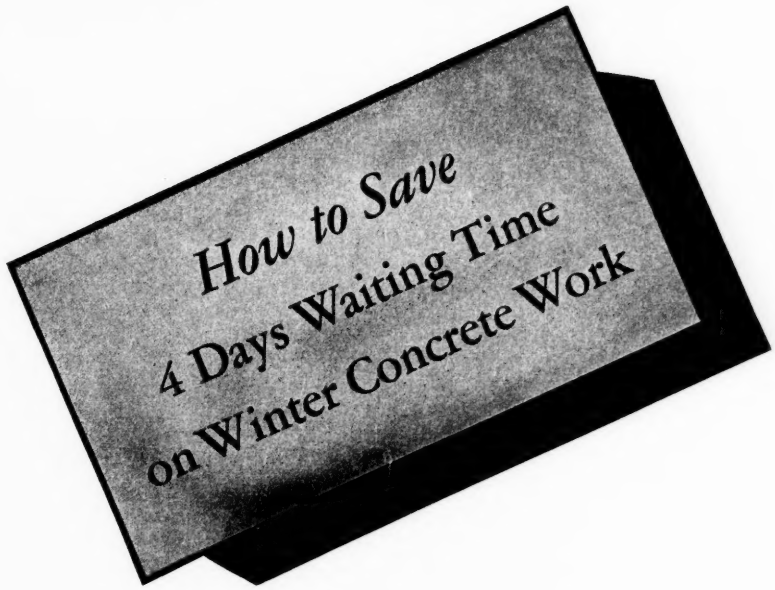
The Anchor Horse Head Joint

Light Weight Electric Hoist

Made in three types for lug suspension, hook suspension, or trolley mounting, the Speedway, a light-weight, low-cost wire rope electric hoist, has been added to the line of the Wright Manufacturing Division of the American Chain & Cable Company, Inc., of York, Pa. Standard construction includes fully enclosed ball bearing motor, anti-friction bearings, cut alloy steel gear spurs, multiple disc solenoid brake, push button control, preformed hoisting cable and other features for efficient service. Hoisting capacities range from 250 pounds to 750 pounds and hoisting speeds from 15 to 43 feet per minute.

Reeves Pulley Atlanta Office

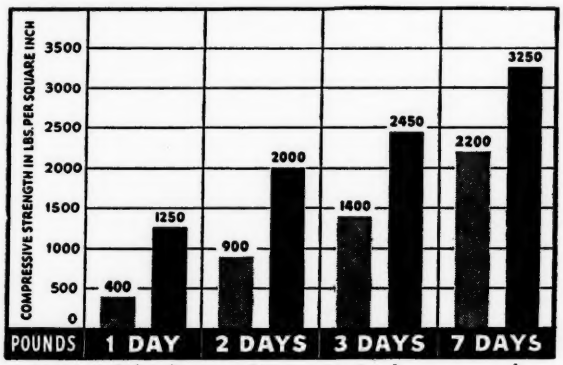
The Reeves Pulley Company, Columbus, Ind., announces its Atlanta office has been changed from 231 Healey Building to 311 Volunteer Building, Atlanta, Ga. W. C. Erwin, graduate engineer with several years' experience in engineering applications of REEVES speed control in Southern territory, is in charge.



Here's a point to keep in mind whenever speedier concrete construction work is urgent.

The time and money required to heat materials, and to mix and place concrete for winter construction, is the same regardless of the type of cement that is used on the job.

However . . . as the chart below clearly shows . . .



Light shaded columns indicate strength of concrete made with regular cement. Heavy shaded columns indicate strength of concrete made with "PENN-DIXIE QUALITY".

concrete that is made with Penn-Dixie Quality High Early Strength Cement (and 7 gallons of water per bag of cement), placed and maintained at a temperature averaging not less than 70 degrees F., has the same compressive strength in two or three days that is obtained in seven days when regular portland cement is used.

This means that instead of waiting 7 days or more for concrete to harden, now it is necessary to wait only two or three days.

Here, then, is an obvious saving of 4 days waiting time . . . and a substantial saving of money on the winter concreting job.

For example:

1. Form costs are reduced because forms may be stripped for re-use sooner.

2. Housing costs are reduced because less housing is required to furnish the proper protection of the newly placed concrete.

3. Heating costs are reduced because the necessary time required for protecting newly placed concrete is also reduced.

Add up these advantages provided by "Penn-Dixie Quality" for quick-use winter concrete. Here's a cement that offers real savings in time and money . . . speeds up construction and permits earlier use or occupancy of the completed structure. When time is an important consideration . . . consider "Penn-Dixie Quality".

For further facts and figures, write the Penn-Dixie Service Bureau at the nearest office listed below.

HIGH EARLY STRENGTH PENN-DIXIE QUALITY PORTLAND CEMENT

The modern High Early Strength Cement

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PORTLAND PENN-DIXIE CEMENT

For all types of concrete construction

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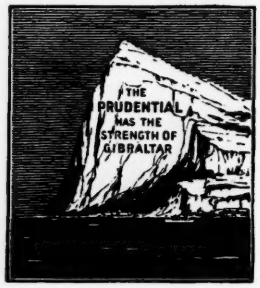
MAKE WISE USE OF EVERY INCOME DOLLAR

A well-planned life insurance program will help you to hold what you earn. Give it good space in your 1939 budget.

May we send you some suggestions?



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INSURANCE COMPANY OF AMERICA
HOME OFFICE: NEWARK, N. J.

» » » *Finance* « « «
AND KINDRED SUBJECTS

Utilities and Government Competition

The case of the utilities versus the TVA as a competitor has been decided in favor of the government and that phase of the work of the government-sponsored enterprise is settled. But how far Congress should go in setting up government-capitalized and government-sponsored enterprise to enter directly into competition with privately owned business is another matter.

The utilities are owned by thousands of individuals and through the other holdings of these investors in life insurance companies and other investment bodies, the extent of the interest of the people of America in privately owned public service companies undoubtedly extends to a large part of the population.

It is well to bear in mind that the TVA has been conducted at a huge loss to taxpayers and Congress will do well to hesitate before authorizing any more such enterprises that are deterring private enterprise and only can be operated by government with a loss that will be reflected in more taxes.

Change the Wagner Law

A variety of laws that are holding business back should be amended and straightened out. They were hastily drawn and hastily passed. The result is confusion which stops progress.

Of the lot, probably the Wagner Law is the most glaring in its lopsided provisions. Employers and employees are working at great disadvantage under it, and there can be little doubt that the great majority of both classes are looking anxiously to Congress for prompt and necessary changes.

Excess Reserves at Peak

The last week in January saw excess reserves go to a total of $3,600,000,000. This means idle money of member banks of the country above the percentage of their deposits they are required to keep with the Federal Reserve Bank.

It is a record high point due to mounting individual deposit money not being called into use for loans—in other words unused credit. Foreign deposits probably account for some of the increase as well as mounting gold at the Treasury but most of it is due to business not borrowing for expansion.

Tax Symbol for 1938

A 25-cent handkerchief on which, according to the National Consumers Tax Commission, there are 59 hidden taxes amounting to 23.6 per cent of the price might well become the symbol for the entire national tax burden. The Commission points out that the country's estimated 1938 tax bill of $13,214,000,000 is 23.6 per cent of national income estimates for the year.

Foreign Trade Balance

America's favorable export balance was $1,133,567,000 for the year 1938. Merchandise exports totaled $3,094,095,000, and imports totaled $1,960,528,000.

The Commerce Department credits the marked rise in this favorable export balance principally to shipments of food products, airplanes, metal machinery and other armament material.

(*Continued on page* 46)

The Arundel Corporation

BALTIMORE, MD.

Constructors and Engineers

Distributors of Sand - Gravel - Stone and Commercial Slag

A COMPLETE ORGANIZATION

Our complete organization with years of experience in successfully executing large construction contracts of various kinds is prepared to undertake the construction of earth, masonry and concrete dams, drydocks, dredging of all kinds, river and harbor improvements, deepening channels, hydraulic filling and rock work, tunnels, railroad construction, sewers and waterways.

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W. BLADEN LOWNDES, Vice-President
RICHARD A. FROEHLINGER, Secy. & Treas.
E. L. WADE, Assistant Secretary
J. N. SEIFERT, Asst. Secy. & Asst. Treas.
C. W. BLACK, Chief Engineer
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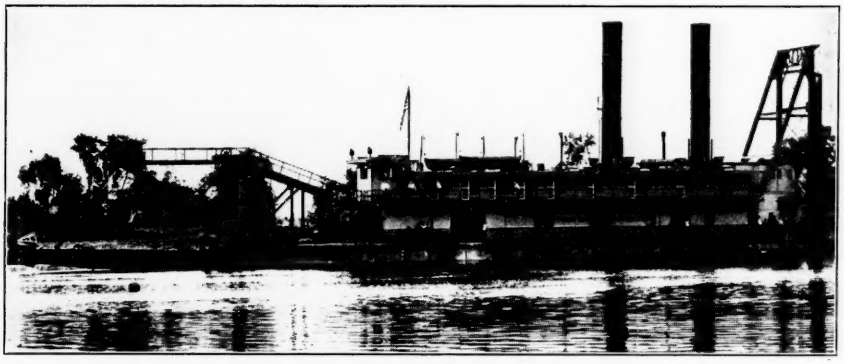
Branches: BROOKLYN, N. Y.—MIAMI, FLA.

DREDGING

FILLING, LAND RECLAMATION, CANALS, PORT WORKS

RIVER AND HARBOR IMPROVEMENTS—DEEP WATERWAYS AND SHIP CHANNELS



We are especially equipped to execute all kinds of dredging, reclamation and port works in Southern waters.
Correspondence invited from corporate and private interests everywhere.

Contractors to the Federal Government

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are being made.

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Correspondence invited

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2510 Loch Raven Road, Baltimore, Md.
Sales Offices, Washington, D. C., Atlanta, Ga.

"Finance and Kindred Subjects"

Foreign Trade Balance

(*Continued from page* 44)

Although the value of exports was 8 per cent less than in 1937, this decline was due, according to the Department, altogether to lower prices as the volume of shipments was approximately the same as the year before.

As compared with 1937, however, there was a 36 per cent decline in imports, which covered a variety of merchandise, including farm products, more of which were imported in the year previous.

We exported more wheat last year than has been done since 1930. We exported more corn than has been sent abroad since 1922, while oranges went abroad in larger quantity than in any previous period.

Taxing Tax Exempts

The question of removing tax exemption privileges from future Federal, state and local government securities will receive a share of the attention of Congress, and will doubtless lead to prolonged debate. States' Rights come into the matter as some believe a constitutional amendment necessary for the Federal government to tax future issues of state securities.

It is expected that figures will be presented to show what the tax yield may be, including the amount which has been thought could be derived by taxing all employees of the various units of government. From this latter class the amount is estimated to be comparatively small, as most salaries of such employees—firemen, policemen, teachers and others—with exemptions granted, fall below the taxing point.

Devaluation of the Dollar

Present indications are that Congress is not in a mood to continue beyond June 30, the emergency power previously granted the President for dollar devaluation. It is believed that the banking committee of the Senate will not recommend the time to be extended.

The question is too big and important to be discussed in the limited space available here, but disturbing to the business mind is the possibility of further reduction in the dollar's gold value.

There is a school of thought which holds to the idea, and not without reason, that there must be a reduction in prices before buying of capital goods and general merchandise will resume normal proportions. Against this, of course, is the high wage bill and taxes industry is paying.

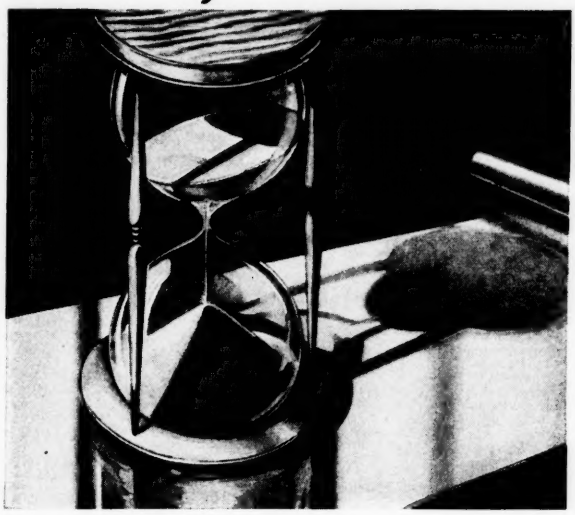
This column has held to the opinion that the theory that high prices as a means to bring us out of the depression was wrong from the start.

The result has been a circle of circumstances, each one impinging upon the other. There have been introduced the Social Security law, the Wage and Hour bill and a variety of burdensome taxes which seem to preclude the possibility of profit if prices are reduced, and profit is necessary as an incentive of all business enterprise. The fact remains people are not buying as they would in normal times, in spite of higher wages.

Any further reduction in the gold value of the dollar means inevitably higher prices by the creation of further inflation. Sanity dictates great caution before such a drastic move is attempted irrespective of disturbed conditions abroad which may at any time seem to make it necessary.

WHEN METAL LIFE MEANS

Saving Dollars!



No matter what your business there's a good chance that ARMCO Stainless Steel can save and earn you money. It can do it in the roughest, toughest service as well as on "white collar" jobs where beauty is important.

ARMCO Stainless is thrifty to use because it's extremely durable. You'll see it gracing the latest streamliners; protecting textiles, paper and foodstuffs; you'll find it resisting heat in roaring furnaces; in searing chemical vats; on roofs and storefronts; in airplanes and deepest mines. In short, ARMCO Stainless Steel is an ideal material wherever high abrasion and corrosion resistance, great strength with light weight, cleanliness or surface beauty are important.

Let us show you how the correct grade and finish of ARMCO Stainless Steel can help solve your metal problem. And remember there are other grades of Armco sheet metals, one for practically every purpose—ARMCO Ingot Iron, plain steel, galvanized, electrical, PAINTGRIP, ZINCGRIP. All are backed by Armco, long known as the world's leading producer of special analysis iron and steel sheets. Write us about your needs. The American Rolling Mill Co., 401 Curtis Street, Middletown, Ohio.

ARMCO

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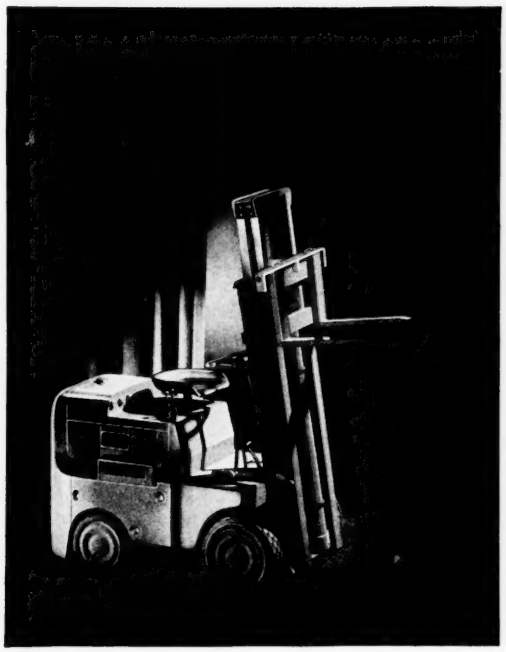
STAINLESS STEELS



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Give Labor mechanical aid, to lower costs.

Send for this book.

Write for a copy of The Clark Carloader Method. It describes a new and more economical way of handling materials and illustrates an epoch-making machine.

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Div. of Clark Equipment Co.

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INDUSTRIAL NEWS

Celebrates 25th Anniversary

Rounding out a quarter-century in the manufacture of waterproofing materials, the Ranetite Manufacturing Company of St. Louis, Mo., which also operates as waterproofing contractors, has serviced many important buildings and projects throughout the country. The rapid growth of the firm's manufacturing business, according to President Joseph L. Schmitt, is due to practical experience on many and varied jobs which required waterproofing materials to meet particular requirements. An advisory service on waterproofing problems is one of the company's functions.

Industrial Power

The application of industrial power is strikingly illustrated on a new 1939 calendar issued by the International Harvester Company of Chicago, Ill., which shows a large load of logs being sledded to the sawmill with the service of an International "Caterpillar" Tractor.

Attractive Calendar

One of the most attractive calendars for 1939 coming to the offices of the Manufacturers Record was sent by The North Carolina Granite Corporation of Mount Airy, N. C., producers of white Mount Airy granite. Artistic in its conception and make-up, the calendar presents an illustration of the new State Office Building at Raleigh which was constructed of this granite after plans by Northup & O'Brien, architects of Winston-Salem. General contract for the building was handled by J. J. McDevitt Company of Charlotte, N. C.

Jenkins Houston Warehouse

Jenkins Bros., Inc., valve manufacturers of New York, N. Y., announce the opening of a warehouse at 112 Walnut Street, Houston, Texas, to serve all points in Texas, Oklahoma, southern Kansas, Arizona and New Mexico, and west of the Mississippi River in Louisiana. The Houston warehouse will be under the jurisdiction of the Atlanta office at 376 Spring Street, of which C. B. Yardley is branch manager.

Baker-Raulang Appointment

The Baker-Raulang Company, Cleveland, Ohio, announce the appointment of the Service Machine and Iron Works, Inc., 1047 Magazine Street, New Orleans, La., as distributors for Baker Industrial trucks, tractors and cranes for Louisiana and Southern Mississippi. Harry J. Lake, who formerly handled the Baker line, is now associated with Service Machine and Iron Works, Inc., so there is virtually no change in representation.

Abrasive Plant For Australia

With the rapid expansion of the metal working industry in Australia during the past few years, industrialists of that country, supported by a keen Government interest, are seeking basic industries to round out their program. Agricultural implement plants have expanded and a new one is in course of construction. Because of the dependence of the model metal working industry on efficient abrasive products, Australian interests sought the cooperation of American and British grinding wheel manufacturers to form an Australian company to produce grinding wheels and allied abrasive refractory products. The new plant of Australian Abrasives Pty., Limited, will occupy a 4-acre site in the industrial district of Sydney, New South Wales, and construction is expected to begin in February. Interests identified with the new company are: Carborundum Company, Niagara Falls, N. Y.; Norton Company, Worcester, Mass.; Universal Grinding Wheel Company, Limited, Stafford, England, and William McPherson of McPherson's Pty., Limited, Australia.

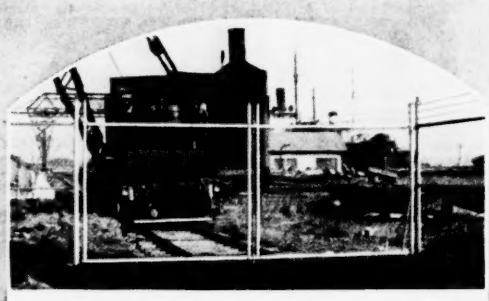
Mareng Fuel Cell

Under a contract between The Glenn L. Martin Company of Baltimore, Md., patent holder, and E. I. du Pont de Nemours & Company of Wilmington, Del., the latter company will extend the market into all fields of industry for the recently announced "Mareng Fuel Cell." This new cell, developed by Martin engineers after years of research, is made of du Pont "Neoprene," a light fabric impregnated with synthetic rubber and is aptly described as an oversized "inner tube." Its development was aimed at producing an airplane gasoline tank less susceptible to damage from vibration than metal tanks, and two years of use in actual flying have completely proved its vibration-proof qualities. Since synthetic rubber is not affected by either gasoline or water contained in it, the new cell has also demonstrated its superior resistance to corrosion. Du Pont engineers extended the research beyond the aeronautical field and found a keen interest in other industries in the Mareng Fuel Cell as offering economies in construction and maintenance of fuel containers, because supporting structures need not be gas-tight.

Norton Company Changes

Changes in the headquarters' sales organization of its Abrasive Division, effective January 1, 1939, have been announced as follows by the Norton Company of Worcester, Mass.: G. A. Parks, formerly assistant sales manager, has been appointed Eastern Sales Manager in charge of the territory east of and including the Pittsburgh district; R. M. Johnson, formerly sales engineer, has been appointed Western Sales Manager, in charge of the Cleveland, Detroit, and Chicago warehouses and other Western territories; A. G. Green, of the Research Laboratories, will take over the position of Sales Engineer formerly held by Mr. Johnson; W. R. Moore, newly-appointed General Sales Manager, will direct the activities of the above three, reporting to H. K. Clark, Vice President; W. T. Montague has been appointed Assistant Vice President, and will continue to supervise staff activities of the Sales Department, including sales research, publicity, training and traffic, reporting directly to Vice President Clark.

(*Continued on page 50*)



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For nearly half a century, industrial organizations have relied on Anchor Fences and the skill of Anchor's Nation Wide Erecting Service for the solution of countless industrial fencing problems. Write today for Anchor Manual and address of nearest Branch Office.

(Above) Anchor Chain Link Fence protecting industrial property. Anchor's complete line of fences and gates also includes Iron Picket Fences for all industrial purposes.

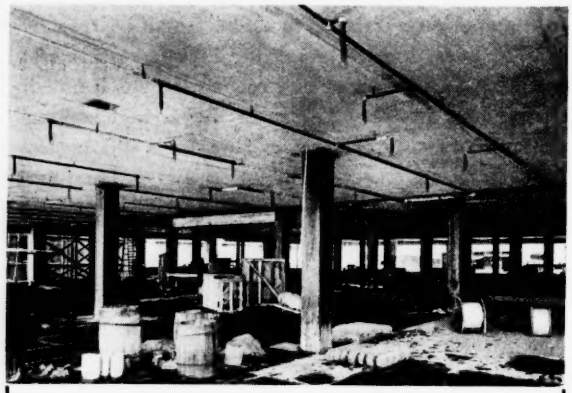
FREE ANCHOR FENCE MANUAL

Write today for Anchor Industrial Fence Manual containing ideas, specifications, that will help you solve your fence problems.

Anchor Post Fence Co.
6622 Eastern Ave.
Baltimore, Md.

ANCHOR FENCES

CHAIN LINK
IRON PICKET
for Every Purpose



CONSTRUCTION VIEW—BUILDING NO. 31
ELI LILLY & CO., INDIANAPOLIS, IND.
ROBERT FROST DAGGETT—*Architect*
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INTERIOR COLUMNS—STEEL
WALL COLUMNS—REINFORCED CONCRETE
EMBEDDED STEEL COLUMN HEADS
SUPPORT THE FLOOR SLABS
IN THIS NEW TYPE FLAT SLAB
FLOOR CONSTRUCTION

"SMOOTH CEILINGS" SYSTEM, PTD.
802 Met. Life Bldg., Minneapolis, Minn.

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are behind the service of Eppinger and Russell Co. Industrial and commercial lumber of all kinds is made immune to termites and dry rot by pressure-treating with ZMA or Creosote. Consult Eppinger and Russell Co. on your requirements in poles, posts, piling, cross ties, cross arms and other timber. It will add 8 to 20 times the natural life to any woods you have treated by this low-cost, dependable process.

PRESSURE-TREATING PLANTS AT:
Jacksonville, Fla. and Long Island City, N. Y.

WOOD PRESERVERS SINCE 1878
EPPINGER AND RUSSELL CO.
84 Eighth Ave., New York City

CRUSHED STONE

Only highest grades of crushed
LIMESTONE AND GRANITE
Meeting all specifications
CAPACITY—8000 tons daily

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SAND—GRAVEL—BRICK
FILTER GRAVEL
Washed Sand and Gravel for Concrete Roads and Buildings
Filter Gravel, all sizes—Building Bricks
FRIEND & CO., INC. River St., Petersburg, Va.

NEW Sewer and Culvert Construction

By making concrete pipe on the job with Quinn Forms you give more men more work, can use less experienced labor and produce uniform concrete pipe of highest quality. Recognized standard of all concrete pipe.

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Quinn Heavy Duty and Medium Duty Pipe Forms best for hand or wet process pipe. Give more years of service. All diameters—12 to 84 inches. Tongue and groove or bell end pipe, any length.

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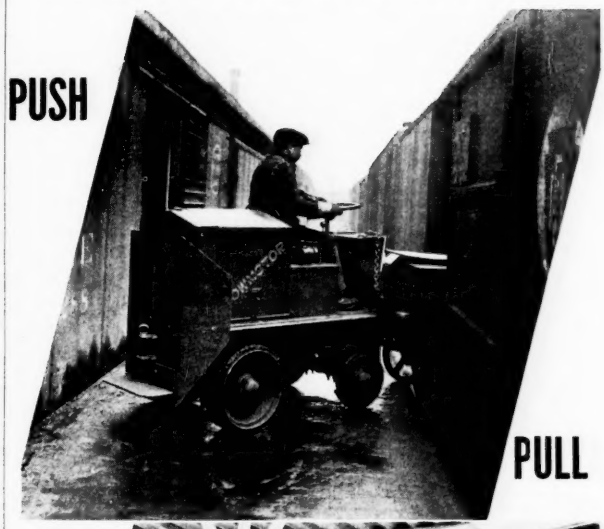

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TOWMOTOR material handling equipment builds profits in plants, mills, docks and warehouses. Equally nimble whether you want to push, pull, carry or stack. Straight gasoline powered for 24 hour uninterrupted service at maximum economy. Lower initial cost and lowest cost per ton moved.

The choice of America's leading specialists in material handling.

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E. Deane Harrington, 17 Guilford Ave., Baltimore, Maryland. Phone: Plaza 4262

L. S. Teague Equipment Co., 1331-1333 West Adams St., Jacksonville, Florida. Phone: 5-4864

Wharton L. Peters, St. Louis Mart Bldg., St. Louis, Mo. Phone: GA. 3050

James J. Alvarez, Merchants National Bank Bldg., Mobile, Alabama. Phone: DExter 5882

C. G. Forshey, 909 M & M Building, Houston, Texas. Phone: CApital 5525

McVoy-Hausman Co., 2019 Sixth Ave. North, Birmingham, Alabama. Phone: 7-5561

INDUSTRIAL NEWS

(*Continued from page 48*)

1939 Calendars

Among 1939 calendars which have been received at the office of the Manufacturers Record, are the following: Tractor Division, Allis-Chalmers Manufacturing Company, Milwaukee, Wis.; Baltimore Commercial Bank, Baltimore, Md.; Hercules Powder Company, Inc., Wilmington, Del.; A. W. Harrison & Sons, Inc., Baltimore, Md., engravers, electrotypers, stereotypers, etc.; Shane-Beever Company, Baltimore, electrotypers; Rose Exterminator Company, Baltimore, Md.; General Electric Company, Schenectady, N. Y.; International Harvester Company, Chicago, Ill.; Pennsylvania Railroad; Mott Core Drilling Company, Huntington, W. Va.; Meyer & Thalheimer, Baltimore, Md., printing, bookbinding, school and office furniture, stationery, etc.; O. J. Maigner Co., 356-360 Pearl St., New York, printers' rollers.

Watson Assigned to Worthington Atlanta Office

Worthington Pump and Machinery Corporation, Harrison, N. J., announces the transfer of Edward Watson, refrigeration and air conditioning engineer, from the home office to its District Sales Office at 133 Carnegie Way, Atlanta, Ga. Mr. Watson will work in North Carolina, South Carolina, Georgia, Florida and Alabama. Serving for several years as Canadian representative of the Carbondale Machine Company of Carbondale, Pa., Mr. Watson joined the Worthington organization in 1934 when Carbondale became a part of Worthington.

TRADE LITERATURE

LOCKWOOD'S DIRCETORY—
As compared with the last edition, the 1939 or 64th annual edition of Lockwood's Directory of the Paper and Allied Trades contains an increase of 36 pages of important data. Reports are presented on all pulp and paper mills in the United States, Canada, Cuba, and Mexico, geographically arranged, covering the name of the company, location of the mill, post office address, names of officers, executives and their connections, superintendents, etc. In addition to much other essential information, there is also a classified list of manufacturers of equipment and supplies purchased by pulp and paper mills. There is also a Converters' Section, covering manufacturers of paper specialties, as well as various other sections. The price of the volume is $7.50 or $7.00 cash with order.

WATER SOFTENING—
Bulletin 1820—"The Accelator for Water Softening," illustrated, outlining advantages of the Accelator, a new and advanced water softener for municipal water plants and smaller units, its underlying principle being an entirely new treating method—treating chemicals applied in a new way, and reactions occurring under new conditions.
International Filter Company, 59 E. Van Buren Street, Chicago, Ill.

HANDLING PROBLEMS—
Booklet—"How Handling Problems Have Been Solved With American Monorail," illustrated, presenting in pictorial form many solutions to industrial handling problems, and pointing out the cost-reducing and labor-saving possibilities of American Monorail Equipment.
The American Monorail Co., 13107 Athens Avenue, Cleveland, Ohio.

RYERSON CERTIFIED STEELS—
Booklet — illustrated, explaining why all steel and allied products carried in Ryerson stock are of high class and dependable; also presenting the special Certified Alloy plan in detail, showing how heat-treating costs may be substantially reduced while producing more uniform and dependable results; publication also presents a digest of standard and special alloys with general hints on heat-treating.
Joseph T. Ryerson & Son, Inc., Chicago, Ill.

STOKERS—
Booklet—"Detroit LoStoker," Bulletin No. 343, illustrating and describing the LoStoker, one of several types of Detroit Stokers, which features adjustable plunger feed, is mechanically driven, automatically controlled, heavily built, and saves coal and labor.
Detroit Stoker Company, Detroit, Mich.

CALENDAR—
1939 Calendar—three months showing at a time, with picture and brief description of the products of one of the divisions, subsidiaries or affiliates of KOPPERS Company on each page; last page telling, by chart and words, the story of modern coke ovens.
Koppers Company, Pittsburgh, Pa.

STEEL AND IRON PRODUCTS—
1939 General Catalog—devoted to Wrought Iron Tubular and Flat Rolled Products and Steel Tubular Products, with standard specifications, dimensions, etc., to meet the requirements of those who will use it, 8½ by 11 inches, wire bound, set in large readable type, with carefully prepared index.
A. M. Byers Company, Pittsburgh, Pa.

SUSPENDED TYPE UNIT HEATER—
Bulletin—illustrating and describing the Lee Gas Fired Unit Heater of the Suspended Type, which has the unusually large output of 500,000 B. T. U's. per hour, which, combined with high velocity, enables the heater to supply warm air to a large area.
Dravo Corporation, Machinery Division, 302 Penn Avenue, Pittsburgh, Pa.

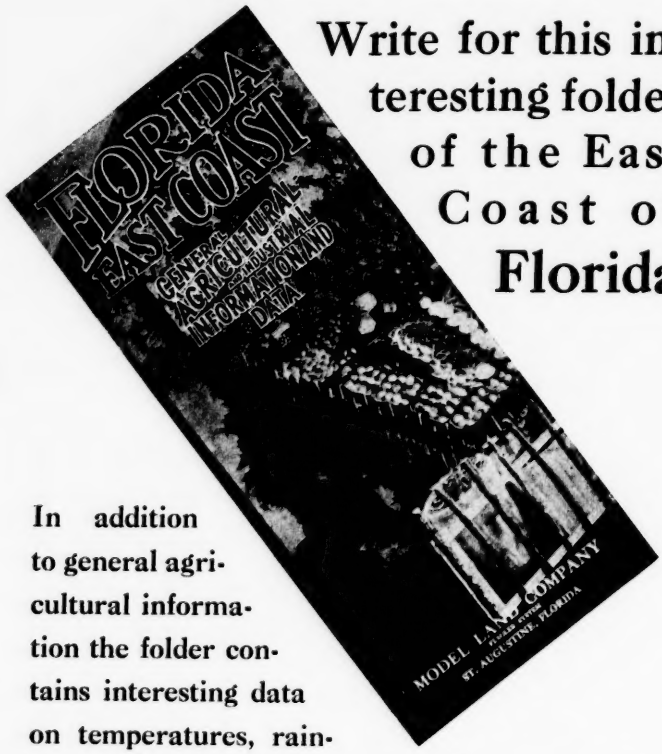
LIGHTING HANDBOOK—
Inserts—new inserts for Westinghouse Utility Lighting Handbook, including specification sheets, distribution curves, new catalog sections and style number index sheets, the handbook being designed to keep public service lighting men posted on developments in Westinghouse commercial industrial and floodlighting equipment.
Westinghouse Electric and Manufacturing Company, East Pittsburgh, Pa.

BEARING METAL—
Bulletin—devoted to Glyco Babbitt Metal, explaining the unique physical structure of the product with its resulting perfect homogeneity and uniformity of quality, and recommended applications for the various grades of Glyco carried in Ryerson stock.
Joseph T. Ryerson & Son, Inc., Chicago, Ill.

ICE CRUSHER-SLINGERS—
Folder No. 1716—illustrating and describing the Link-Belt line of ice crusher-slingers on motor trucks for team track top-icing of fresh vegetables, with snow ice made from cake ice.
Link-Belt Company, 2410 West 18th Street, Chicago, Ill.

POWER INDUSTRIAL TRUCKS—
Bulletin A-8416—covering Type ELN-10 low lift platform truck; Bulletin A-8459—devoted to ELN-10 high lift platform truck; both types having rated capacities of 10,000 pounds, equipped with Elwell-Parker k-75 controller, which permits four speeds forward and four reverse and dynamic brakes.
The Elwell-Parker Electric Company, Cleveland, Ohio.

AIR CONDITIONING AND REFRIGERATION—
Booklet—illustrated, dealing with the installation of Frick air conditioning and refrigeration in New England and Manhattan, for which engineers of The Automatic Refrigerating Company of Hartford, Conn., join with those of the Frick Company to provide superior service;
Bulletin No. 137-A—dealing with Frick Flexo-Seals for Enclosed-Type Ammonia and Freon-12 compressors.
Frick Company, Waynesboro, Pa.



Write for this interesting folder of the East Coast of Florida

In addition to general agricultural information the folder contains interesting data on temperatures, rainfall and crops as well as a brief description of each of the Florida East Coast counties.

Write for your copy

Model Land Company

Flagler System

St. Augustine, Florida

Tank Builders For Over 80 Years!

A 40,000 Gallon Bottle!

This water tank, designed, constructed and erected by COLE, not only provides fire protection but outstanding publicity. We have made tanks in other odd shapes—bottles, etc. Does *YOUR* product lend itself to such unusual advertising?

Cole Tanks

Tanks of any kind and size for any purpose designed and constructed by us—storage, water, fuel oil, acid, chemicals, etc. Let our Engineering Department study your needs.

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Standpipes	Vats	Storage Bins
Smokestacks	Air Receivers	Fabricated Framework

Write for "Tank Talk"—No. 24-D

R. D. COLE MANUFACTURING CO.
ESTABLISHED 1854
NEWNAN GEORGIA

TANKS

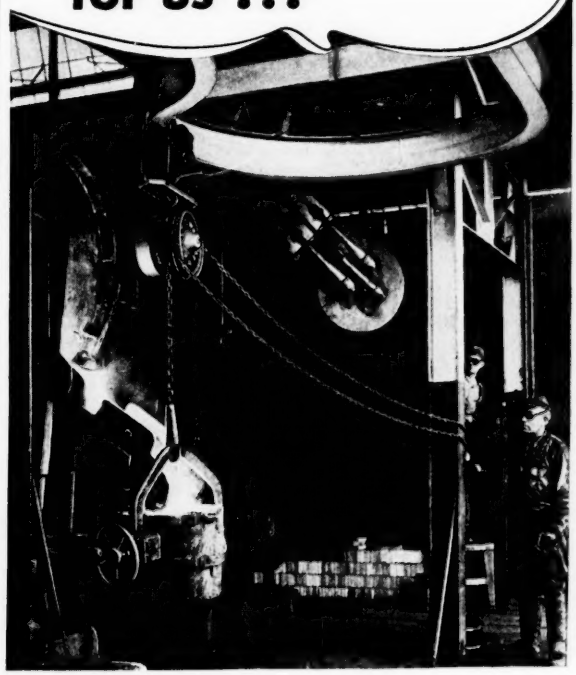
Made to your specifications of steel, stainless steel, stainless clad, monel, nickel, nickel clad, copper, aluminum and alloy metals.

PLATE and SHEET FABRICATORS
From 1/16" to 1" in thickness

Our 25 years of experience in fabricating pressure and non-pressure tanks, smoke stacks, smoke breechings, hoppers, bins, chutes, storage heaters, instantaneous heaters, condensers and kindred equipment is at your command.

RICHMOND ENGINEERING COMPANY Inc.
RICHMOND — VIRGINIA

"WRIGHT *Improved High Speed* HOISTS are RIGHT for us"...



● Thousands of owners and workmen say the same thing: "WRIGHT Improved High Speed Hoists Are RIGHT For Us."

In hazardous applications—like the one shown above—men work with speed and confidence. They know the load chain can't ride out of the pocket, regardless of hoist position. They know the hand chain won't foul. They trust the Wright Hoist for smooth, steady operation when much depends on it.

Zinc coating of all parts prevents corrosion. Precision ball bearings on load wheel increase efficiency and durability. Positive grease seals insure continuous lubrication of all moving parts under all conditions. There are 18 other features that provide safety, economy and easy operation.

BUY ACCO QUALITY *in Wright Hoists, Lay-Set Preformed Wire Rope, Reading-Pratt & Cady Valves, Campbell Abrasive Machines, American Chains, Page Welding Electrodes and Page Chain-Link Fence.*

WRIGHT MANUFACTURING DIVISION
YORK, PENNSYLVANIA

ACCO TRADE MARK

AMERICAN CHAIN & CABLE COMPANY, Inc.
In Business for Your Safety

Management, We Can Help You

BY

Curtis Gentry

Director, Department of Secondary Education Knoxville, Tenn.

A FEW years ago the personnel director of the New York Stock Exchange made a survey of personnel directors in the United States to ascertain, among other things, the attitude of business and industry towards the schools. He found that business criticized the schools for not taking steps to help bring the schools and business closer together. Another criticism was a lack of well-organized programs of vocational guidance in educational institutions.

These challenges have been met. Schools have, in recent years, given a great deal of attention to vocational guidance and placement. Also, junior placement services have been introduced as distinct divisions in the United States Employment Service and the schools are cooperating with these services. In some instances, as in Knoxville, Tennessee, a close tie-up is maintained between the junior placement division of the United States Employment Service and the Department of Vocational Guidance and Placement of the city schools.

Every effort is being made in the modern school system to classify high school graduates according to special aptitudes, mental ability, personality, school grades and deportment. This is exactly what we are doing with more than 7,500 high school students of the Knoxville City Schools, and the success of this experiment is attested to by the number of graduates placed with factories in this industrial area.

When industry is apprised of what we are trying to do, it is hoped that management will see the great amount of time and money which directors of vocational guidance and placement in city schools and colleges can save them, in addition to raising the general level of ability of the employes.

What is true in Knoxville is true in a number of cities.

Specifically, how can we help management? A large number of factories do not have well-organized personnel departments. By well-organized we mean a department which carries on a scientific testing program as a modern method of selecting men. What the Stevens Institute of Technology, of New Jersey, has done on a large scale in helping men and industries increase efficiency through a more scientific use of human ability, a number of educational institutions have been able to do in a smaller way.

In the Knoxville schools we carry every high school senior through a testing program, the results of which have been sufficiently reliable to use in placing them in jobs.

Any well-built aptitude test always includes the common sense questions which a good employer asks an applicant, plus a number of other questions and problems. In other words, an aptitude test has all of the good points of the interview systematized and the answers weighted. The interview, however, should not be abandoned.

With individual analysis of high school graduates, we are serving both the student and the employer. The student gets a vocational picture of himself which is doubly reassuring and leads to a certain amount of definiteness and self-confidnece which young people sorely need in this complex industrial world. It helps the employer specifically in this way: We send out only about five or six applicants for the employer to interview, whereas an advertisement in the newspaper would bring him two or three hundred and then he probably would not get his young man. When you consider the time spent in the interviews, and also the unscientific manner in which many employers reach conclusions as to the fitness of certain applicants for the job, I believe that you will see that well-organized vocational guidance and placement services in schools, colleges and universities will help you to solve what is probably the greatest of all management problems, that of personnel.

The testing program used in Knoxville has been brought to its present stage over a period of about eighteen years. It is based upon the theory that all of us differ in the sets of abilities which we possess. Plato observed, "No two persons are born exactly alike . . . one being suited for one occupation and another for another . . . We cautioned the shoemaker against attempting to be an agriculturist . . . with a view to our shoemaking work being well done."

We believe that we are fitted for groups of occupations which are similar in nature, or which require similar sets of abilities, such as mechanical, literary, and so on. It is the duty of the schools to classify students according to these abilities so that both the student and the employer will have some idea of the vocational inclinations of the graduates.

Our test records show that about forty per cent of the boys who graduate from the Knoxville High Schools are mechanically or scientifically inclined. Many of these boys enter the University of Tennessee and other higher institutions of learning, leaving only a small percentage of the better ones available for business and industry upon high school graduation. This is true of nearly all high schools. It is quite evident that if business has access to the names of the boys and girls who rate highest in these groups, or other groups of occupations such as literary, business, and so on, the selection of suitable applicants for certain specific positions would be greatly simplified. Such a procedure, we believe, is on the road to scientific placement of graduates and scientific selection of applicants. We invite leaders of business and industry to give this program their sympathetic consideration. We solicit your suggestions. No vocational guidance program can be worked out satisfactorily without the help of business. We are trying our best to help you solve some of your employment problems and at the same time serve the high school boys and girls who leave us to enter business and industry.

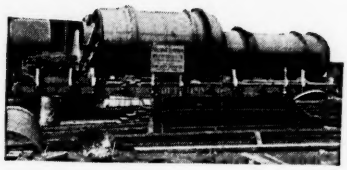
"Silver Meteor"—New Seaboard Train

Thirty people submitting the winning name for the Seaboard Air Line Railway's new stream-lined Diesel-electric powered train divided a $500 prize offered by the company and have received checks for their parts. The name selected was the "Silver Meteor," out of a total of 23,200 names submitted. A total of 79,326 entries was mailed during the period of the contest—December 1 to 15. Judges were W. G. Jones, assistant to the receivers, W. D. Faucette, chief engineer, and W. R. C. Cooke, general counsel. The train goes into the Florida service about February 1.

Hanson Excavator Chicago Office

The Hanson Excavator Works, division of Hanson Clutch and Machinery Company, Tiffin, Ohio, announce the appointment of O. E. Quinton as Director of Sales with offices at 224 South Michigan Avenue, Chicago, Ill., where a new office has been opened. Mr. Quinton has been associated with dealer organizations in the distribution of construction equipment for the past ten years. Products of the Hanson company include excavators, cranes, shovels, draglines and clamshells of the crawler and track-mounted types, in sizes of ⅜, ½, and ¾ cubic yard capacities; also heavy-duty low platform gooseneck trailers and semi-trailers as well as skeleton trailers for transporting cranes and shovels, in sizes from 6 to 60 ton capacities.

SOUTHLAND PRODUCTS
—WELDED OR RIVETED—



We now manufacture and offer to the trade tanks in all sizes for pressure or gravity work. Also other steel equipment of either

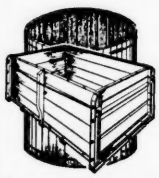
WELDED OR RIVETED CONSTRUCTION

This applies to field as well as shop built equipment.

Write us for information and quotations.

CHATTANOOGA BOILER & TANK CO.
CHATTANOOGA, TENN.

WOOD TANKS
Wood Stave Pipe



Our products are designed, built and erected by experienced tank makers.

Tanks any size for all purposes.

Towers any height for tanks.

Write for literature and prices.

THE BALTIMORE COOPERAGE TANK & TOWER Co.
Baltimore, Maryland
The Largest Works of Its Kind in the South

FILTERS
Water Filters for Municipalities, Textile Finishing Establishments, Rayon Manufacturing Plants, Swimming Pools, Raw Water Ice Plants, Laundries, etc.

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Filtration and Pumping Equipment
For Water Works and Swimming Pools
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DAVIS CYPRESS WATER TANKS
The "BUY WORD" for 50 years

No wonder that the new paper and pulp industry in the South is coming to Davis, when plants in all other lines have been installing our tanks for 50 years.

Cypress, sometimes called "the wood eternal," is the material used.
Let us mail you a catalogue.

G. M. DAVIS & SON
P. O. Box 5,
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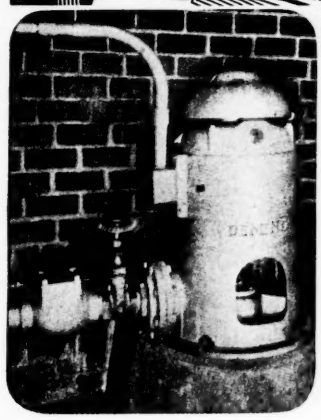
DAVIS CYPRESS TANKS

$2019.50 ANNUAL SAVINGS ON WATER COSTS



DEMING DEEP WELL TURBINE REDUCES WATER COSTS 71%

• "We'll gladly recommend a Deming Turbine Pump to anyone who may desire to put down their own well," writes a plant engineer who explains . . .

"The year prior to owning our own water supply, our water costs were $2846.70. The year after we installed our Deming Turbine Pump, the cost of power to run it, plus proper allowance for depreciation and interest on the investment, totaled $827.20. Net savings on water costs for the year were $2019.50."

Your use of water may be more or less than the above mentioned concern. But it will cost you nothing to ask us to cooperate to determine the facts. *Investigate Deming Turbine Pumps!*

DEMING
PUMPS AND WATER SYSTEMS
THE DEMING COMPANY • SALEM, OHIO

A New Missouri State Office Building

BY

Edgar M. Eagan,
Executive Secretary,
Board of Permanent Seat of Government

A RECORD in building construction has been established by the Board of the Permanent Seat of Government in erecting the $850,000 Missouri state office building at Jefferson City. Ground was broken for the beginning of construction on March 1, 1938, and the first department was moved in the following November 28. The appropriation for construction of the new building was provided by the Fifty-ninth General Assembly, 1937.

The building is located at the southeast corner of High and Broadway streets, on the site set up in the general plans for the development of the capital grounds around Missouri's capitol building. It is built of white Carthage stone to harmonize with the Capitol; contains 96,000 square feet of floor space, and will house seventeen State agencies.

The Board of the Permanent Seat of Government is headed by Lloyd C. Stark, governor of Missouri. Other members of the Board are Dwight H. Brown, secretary of state; Forrest Smith, state auditor; Roy McKittrick, attorney-general; Robert W. Winn, state treasurer. The writer is the executive secretary. Designs were made by the architectural firm, Keene and Simpson, 15 West Tenth Street, Kansas City. They were represented on the job by E. H. Farrar, superintendent of construction. The contract has been carried out by the Lehr Construction Co., of St. Joseph, Mo., with George Wright of that city serving as superintendent of construction.

C. G. Hammond photo

The building has eight floor levels and a penthouse. Its frame is concrete, the Carthage stone being used in the exterior walls. Approximately 5,000 cubic yards of concrete were required to pour the frame work, which extends over an area of 132 feet, 6 inches, by 156 feet, 3 inches. During the course of construction the contractor poured an average of one floor per five day week.

Steel window sash has been used throughout the building. The floors of the elevator lobbies and corridors are done in terrazzo, while the remainder of the flooring has been finished in linoleum. The wainscot in the corridors is St. Genevieve marble from Missouri quarries. Most of the office partitions are of metal, which have been provided by Niedringhaus, Inc., of St. Louis, Missouri. The doors and woodwork are Philippine mahogany, and the ceilings are completed in Acousti-Celotex. The under floor duct system has an outlet at every twenty-four inch interval for both electricity and telephone service. The lighting fixtures were furnished by the Edwin F. Guth Co., of St. Louis.

How To Bend Pipe

BY

W. F. Schaphorst, M. E.

A QUESTION that is often asked is: "What is the best way to bend pipe?"

By way of reply, the following experiences will probably be of interest:

To bend large pipes, fill with dry sand and plug the ends. Heat to a red heat in the localities to be bent and then bend. Be sure that the sand is dry. Where bends are slight, it is often unnecessary to use sand or resin. The object of sand or resin is simply to keep the sides of the pipe from collapsing, or to prevent reduction of flow area. If wet sand is used, and if the ends are plugged, the pipe may burst when heated, due to the steam pressure generated.

Instead of sand, resin is good. There is, however, a "right way" and possibly several wrong ways to use resin. An example of a wrong way was recently brought to my attention where the mechanic filled the pipe with resin, plugged the ends, and heated the pipe at the place where he wanted to bend it. He watched for a "red heat" just as he would, had he filled the pipe with sand. The result was a violent explosion.

To use resin correctly, pour it into the pipe and allow it to cool and harden. As soon as the resin is hard, bend the pipe cold. Don't heat it. Then after the pipe is bent, heat the pipe all over sufficiently to melt and remove the resin.

Equal results may be secured by using lead instead of resin. I have been told that on cold days in the far North they sometimes fill the pipe with water and let it freeze, and then bend the pipe. It sounds plausible, but care must be exercised there on account of the expansion of water when it freezes.

Many excellent mechanical devices are on the market for bending pipe. To bend large, stiff pipe slightly and inexpensively, there is nothing handier or more efficient, in my judgment, than a hydraulic pipe bender driven by a hand pump.

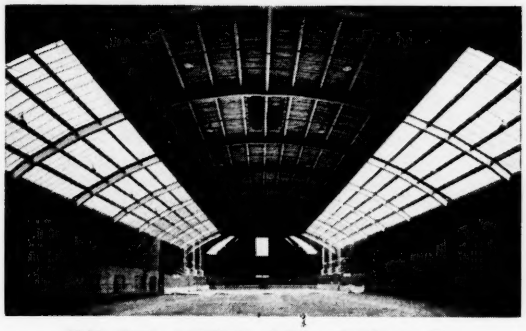
Increased Airline Traffic

Eighteen thousand more passengers were carried by Pennsylvania-Central Airlines in the past year than were carried in 1937, breaking all records in the company's twelve year history. Total passengers carried were 92,240, a 24% increase over the 1937 total.

The record-breaking level of business attained by Pennsylvania-Central during the summer was sustained through the late fall and early winter.

Five new air services were added by P. C. A. during 1938: The Detroit-Sault Ste. Marie Air Mail route 41; the Washington-Norfolk extension of Air Mail route 11, the Grand Rapids-Chicago extension of Air Mail route 32, and the Pittsburgh-Buffalo and Pittsburgh-Baltimore passenger and express services. Pennsylvania-Central now serves directly 20 cities in 8 states in the industrial East and Midwest.

1263 passengers were carried from Baltimore to Pittsburgh, Cleveland, Buffalo and points west.



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Our Engineering Service Department can aid you on your skylighting problems. Write or wire.

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CREOSOTED TIES, PILING, POLES, POSTS, CROSS ARMS, and LUMBER

WOLMANIZED LUMBER—
Decay and Termite Proof—Can Be Painted
Docks for Ocean Vessels

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New Orleans, La.

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Plants at: New Orleans; Winnfield, La.; Louisville, Miss. Savannah, Ga.; Jackson, Tenn., and Norfolk, Va.

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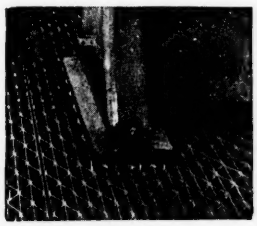
Better Floors for Safety

Kerlow industrial floors are safer and give better ventilation—made in various types 70% to 90% open—made in all riveted and rectangular designs for personal choice. Kerlow "BOLDEJ" Safety Steps are made in all grating designs. Ask for catalog.



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2. *Non-slipping*
3. *Fireproof*
4. *Self-cleaning*
5. *Custom-Made to Fit*

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Atlanta, Ga.	Knoxville, Tenn.	
Birmingham, Ala.	Baltimore, Md.	
Jacksonville, Fla.	Memphis, Tenn.	
New Orleans, La.	Louisville, Ky.	

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220-222 Culver Avenue — Jersey City, N. J.

Another MILLION GALLONS PER DAY FOR MOUNT PLEASANT, MICH.

FEEDING directly into the Mount Pleasant mains under pressure, goes another million gallons of pure cold water from the third Layne Gravel Wall Well and high efficiency Layne Vertical Turbine Pump.

More than ten years ago, that thriving little Michigan city bought its first Layne Well and Pump. As their needs for water increased, they bought a second unit. Now the third one is in operation. Such repetition of orders can only denote their experience in satisfaction for which Layne Well Water Systems are world-wide famous.

AFFILIATED COMPANIES

Layne-Arkansas Co., Stuttgart, Ark.
Layne-Atlantic Co., Norfolk, Va.
Layne-Central Co., Memphis, Tenn.
Layne-Northern Co., Mishawaka, Ind.
Layne-Louisiana Co., Lake Charles, La.
Layne-New York Co., New York City, and Pittsburgh, Pa.
Layne-Northwest Co., Milwaukee, Wis.
Layne-Ohio Co., Columbus, Ohio.
Layne-Texas Co., Houston and Dallas, Texas.
Layne-Western Co., Kansas City, Mo., Chicago, Ill., Minneapolis, Minn., and Omaha, Nebraska.
Layne-Bowler New England Company, Boston, Massachusetts.
International Water Supply, Ltd., London, Ontario, Canada.

All installations were made by the Layne-Northern Company of Mishawaka, Indiana—one of the many Layne & Bowler, Inc. affiliated companies that dot the map from Canada to Mexico.

While Layne Wells and Pumps serve the largest cities and industries, they are also used by many small towns and manufacturing plants.

For complete information on our services, our methods of locating and drilling for water and the kind of pumps and equipment we install, write

LAYNE & BOWLER, INC.
Dept. X1, Memphis, Tenn.

LAYNE

PUMPS & WELL WATER SYSTEMS

For Municipalities, Industries, Railroads, Mines and Irrigation

Johns-Manville Completes New Virginia Plant

(Continued from page 24)

located near to the track and also obviates the possibility of an accident on the railroad damaging the structural supports.

Process and heating steam for the plant will be generated in a boiler house approximately 60 feet wide, 66 feet long and 40 feet high. The construction of this building is similar to that of the manufacturing buildings, except that a plain corrugated type roof was used instead of the insulated type. Equipment comprises two 30,000-pound per hour boilers, burning either pulverized coal or the waste products from the slasher fans and other auxiliary equipment. Coal may be either elevated from a track hopper directly to an overhead storage bunker or may be stored in an area at the west end of the boiler plant and reclaimed by a drag line conveyor. The waste products are fed to the boilers from the hog fuel storage bin previously mentioned.

The process water will be obtained from the Nottoway River approximately 2½ miles north of the plant. The river water enters a screen well and pump house approximately 60 feet long, 15 feet wide and 30 feet deep through a steel sheeted channel about 50 feet in length. The screen well substructure is of reinforced concrete construction and contains a 10 foot wide traveling screen, two 2,500-gallons per minute vertical pumps, together with their auxiliaries and also provides for two future pumps of the same capacity. From the screen well the water is carried to the plant in a Johns-Manville pressure transite pipe 18 inches in diameter to two 500,000-gallon settling tanks, from which it is carried to the process water system. Drinking and make-up water for the boilers will be obtained from a driven deep well on the plant site.

Yard facilities comprise approximately one-half mile of railroad sidings to serve the finished product building and boiler house, macadam surfaced roadways, fencing and gates, a watchman's house and parking areas for employees and visitors.

Construction activities began at the site about the middle of May 1938 and steel erection commenced the first of June. Other building items followed along as soon as the progress of the structural steel erection would permit and all work in connection with the buildings, with the exception of minor items, was completed the first of December. Assembling and erection of the equipment began in the latter part of July and it is anticipated that preliminary operation of the plant will start immediately. Production operation should commence within a few weeks thereafter or within approximately nine months from the beginning of construction.

The plant will produce approximately 100,000,000 square feet of fibre products per year and will provide permanent employment for from 200 to 300 men, in addition to those engaged in the cutting and delivering of pulp wood to the plant, most of which material will be purchased from local organizations. In order to insure a permanent supply of raw material Johns-Manville Corporation has purchased timber lands in the vicinity of the plant. These timber lands, as well as those of the contractors furnishing the pulp wood, will be under the control of the corporation's forestry department, who will allow the cutting of only such timber as has reached sufficient size and who will also control the reforestation and maintenance of the woodlands to provide a continuous supply of raw materials for all future needs.

Koppers Announces Appointments

Joseph Becker, vice president and a director of Koppers Company, Pittsburgh, Pa., has also been made president of Koppers-Rheolaveur Company, designers and builders of coal washing plants. W. S. McAleer, manager of Koppers-Rheolaveur, has been made a vice president and director of the company. With the company since its beginning and an officer since 1920, Mr. Becker, who is the inventor of the Koppers Becker type of coke oven and of processes for the recovery of derivatives in the manufacture of gas and coke, is also the general manager of Koppers Company's Engineering and Construction Division. Mr. McAleer has been with the organization since 1926, beginning his service as an engineer and joining the sales department in 1930. He was made manager of Koppers-Rheolaveur last July.

Heading Specialists

Economy-minded buyers of made-to-order screws and headed parts are discovering real savings in PROGRESSIVE cold upset products. They have found that many parts now milled from the bar can be headed efficiently and accurately with our modern equipment — at reduced costs. We invite you to submit samples or outline ideas to our specialists. Their advice — intelligently and promptly given — may show you the way to greater fastening economies.

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The PROGRESSIVE MFG. CO.
TORRINGTON · · · CONNECTICUT

TO RAISE PANELS ON A SHAPER—

is no trick at all if one is prepared with a Shimer Panel Raising Cutter to fit the spindle of the Shaper. This Cutter, moulded to agree with the shape of the panel and provided with clearance, furnishes a permanent and free-cutting instrument that any practical man will appreciate because he can do so much with it. Made to cut either clockwise or anti-clockwise, in 34 or more distinct shapes—to suit the most particular person.

Write us for further information, giving sketch of the panel, size of spindle and the direction in which the Cutter shall rotate.

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MILTON, PENNSYLVANIA

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SAVES MONEY

CLEAN DRY STEAM, COMPRESSED AIR and VAPORS ASSURE MORE WORK IN LESS TIME, WITH LOWER MAINTENANCE COSTS.

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STRUCTURAL STEEL
For Bridges, Buildings and All Industrial Purposes
Steel Plate and Miscellaneous Iron Work
Complete Stock Shapes, Plates, Sheets and Bars for Immediate Shipment
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STRUCTURAL STEEL for BUILDINGS and BRIDGES
Capacity 1000 Tons per Month. 3000 Tons in Stock
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PERFORATED METALS
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Structural Steel for all Industrial Structures, Buildings and Bridges.
LARGE STOCK FOR IMMEDIATE SHIPMENT

Water Purification Plants
Any Type—Any Purpose—Any Capacity
Dry Chemical Feed Machines
Swimming Pool Filters
E. W. BACHARACH & CO.
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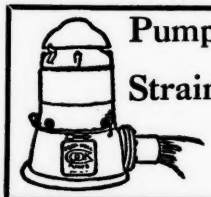
Pumps—Deep-Well Plunger and Turbine
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WATER PRESSURE SYSTEMS
A. D. COOK, Inc.
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Today Myers brings you the most modern, the most dependable double acting cylinders on the market. There is nothing experimental about them. Designed by experts, built to precision standards, their reputation for dependable and economical service is firmly established in pump circles the country over.

Whether conditions are regular or otherwise, Myers Double Acting Cylinders satisfactorily solve most deep well pumping problems. They furnish the plus volume of water that lowers pumping costs and satisfies the most critical of users.

If you require more water from any source at lower cost than is possible to secure by ordinary methods write us for circular and complete information.

THE F.E. MYERS & BRO. CO.
ASHLAND, OHIO
PUMPS-WATER SYSTEMS-HAY TOOLS-DOOR HANGERS

New Books

"Rand McNally Bankers Directory"—On September 13, 1938, the final edition of the Rand McNally Bankers Directory came from the press with the latest bank statistics and information. A year prior to the publication of the directory, according to statistics, there were 15,812 head office banks; six months prior to that there were 15,659, and at the time of the publication there were 15,554. Figures disclose that 312 banks closed by liquidation, absorption, merger, conversion of consolidation, and that 54 banks were discontinued. A total of 72 banks changed title and/or location, and 152 banks or branch banks opened. The story of these banks is told in the final 1938 edition of the directory. Price of the volume, cloth-bound, is $15.

"Plastic Working of Metals and Power Press Operations"—The second edition of Crane's "Plastic Working of Metals and Power Press Operations" has come from the press of John Wiley & Sons, Inc., Publishers of Books, 440 Fourth Avenue, New York. The book is by E. V. Crane, Ph.B., M.E., and in its preparation, according to Mr. Crane in his preface, "it has been possible to clarify and expand details of the plastic working theory, and to add to the discussions of the several groups of operations, practical details which it is hoped may prove of value." For the discussion of mechanical characteristics and utility of different types of metal working presses, a new chapter has been added, while another new chapter is devoted to an analysis of means combining operations in tooling automatically fed presses. Tabular data of value to press and die men, and a compilation of pertinent available physical properties of frequently used metals have been added in the Appendix. The price of the volume is $5.00.

"Design of Industrial Exhaust Systems" — By John L. Alden, Member, American Society of Mechanical Engineers; published by The Industrial Press, 148 Lafayette Street, New York; Price $3.00. The purpose of the volume is to tell the engineer how to design and build or how to buy an exhaust system that will adequately and economically perform the functions prescribed by the law or by the industrial hygiene expert. The book covers the following subjects: Flow of fluids, hood forms, air flow through hoods, pipe resistance, piping design, dust separators, low pressure conveyors, centrifugal exhaust fans, structural details and system planning, field measurements and their interpretation.

"North Carolina Industrial Directory"—From the press of the Christian Printing Company, Durham, N. C., has been issued the North Carolina Industrial Directory and Reference Book, prepared by collaboration of the Division of Commerce and Industry, (Department of Conservation and Development. R. Bruce Etheridge, Director) with the North Carolina Department of Labor, Forrest H. Shuford, Commissioner. It was compiled under the direction of the Division of Commerce and Industry, Department of Conservation and Development, J. T. Anderson, Industrial Engineer, and is priced at $7.50.

The volume contains a state-wide list of manufacturers classified according to types of industries, a listing of similarly treated industries by counties, all industries and commercial houses listed by towns and cities, and statistical data and summaries for the counties and the state. Mr. Etheridge, in a foreword, states that it is planned to issue similar directories at intervals in the future to make possible a continuous inventory of the State's industrial progress.

World Cotton Output Made New High Record in 1937-38—World production of cotton in the 1937-38 season was greater than ever before in the history of the cotton trade, according to a review of that season contained in the eleventh Cotton Year Book of the New York Cotton Exchange just issued. World consumption was large as measured by the average of past seasons, but it was below world production. In consequence, world stocks at the end of the 1937-38 season were the largest on record.

The production of cotton by the world in the season of 1937-38 reached the extraordinary total of 36,576,000 bales, according to statistics in the book. The largest previous production was 30,851,000 bales in the preceding season. The extremely large world crop was due to the fact that the United States produced more cotton than ever before, while foreign countries produced nearly as much as in the previous season when they reached a new high record for total output.

World consumption of cotton in 1937-38 aggregated 27,565,000 bales. At that level it was down sharply from the record-breaking total of 30,689,000 in the previous season. However, prior to the last three seasons world consumption of cotton averaged only 25,000,000 to 26,-

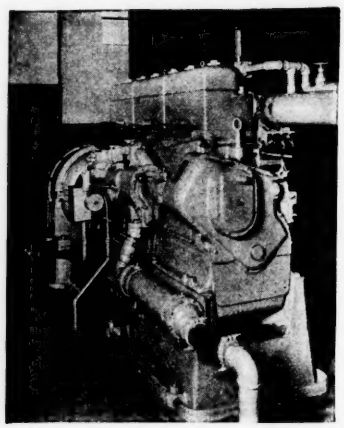
(Continued on page 60)

EMERGENCY LIGHTING GENERATOR SET

on SAN FRANCISCO GOLDEN GATE BRIDGE

Sterling — THE ENGINE OF RETIREMENT

187 K.V.A. 1200 R.P.M. General Electric Generator direct connected to Sterling Viking 6-cylinder 330 H.P. Engine, for standby service.



Twenty Welland Canal Bridges; The Pennsylvania Railroad; C.R.R. of New Jersey; D. L. & W.; P.L. Bridges at Newark; New York City Triborough Bridge—many of the important lift bridges built in the past 15 years are equipped with Sterling engine generator sets.

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The largest job galvanizing plant in the United States
GALVANIZED PRODUCTS FURNISHED
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FINE GEARS of all Materials—All Types and Sizes
Spur Gears—½ in. to 30 ft. in diameter
Bevel Gears—½ in. to 13 ft. in diameter
Spiral Gears—½ in. to 10 ft. in diameter
Worm gears any practical size. Racks curved or straight. **Fast Delivery—Fair Prices.**
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EARLE GEARS

ELECTRIC ELEVATORS
FREIGHT AND PASSENGER
Ball Bearing. Push Button Control
Moderately Priced. Installed or F.O.B.
Bulletins and Prices On Request.
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We have plant and equipment for machining parts, building assemblies, complete units and machines.

HEAT TREATING AND GRINDING

Let us furnish quotations on your products.

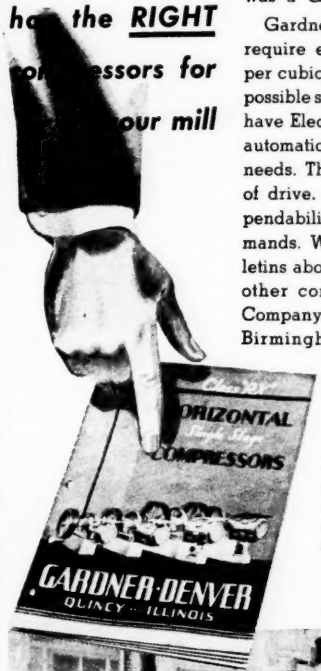
GENERAL MACHINE WORKS
York, Pa.

C-O-O-L AIR WAS NEEDED

for the humidity system . . . so they chose a

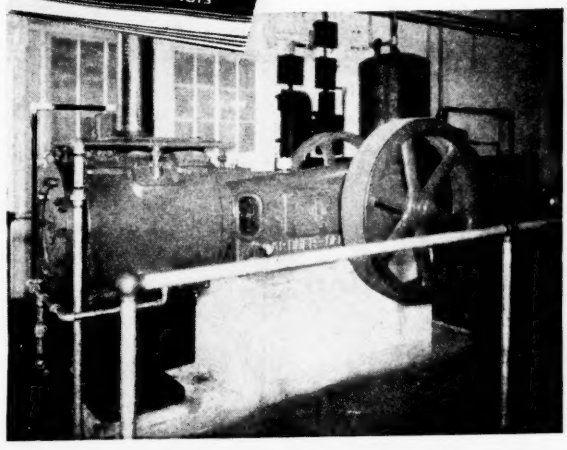
GARDNER-DENVER "RX" COMPRESSOR

Gardner-Denver has the RIGHT compressors for your mill



● Every hour, 1872 pounds of water are evaporated in the humidity system of Mill No. 2, Travora Manufacturing Company, Haw River, North Carolina—one of the most progressive textile mills of the South. To accomplish the proper cooling effect with this system, it was necessary to have an air compressor which would furnish air of the lowest possible temperature. The compressor selected was a GARDNER-DENVER "RX".

Gardner-Denver "RX" Compressors require exceptionally low horsepower per cubic foot of air delivered—making possible substantial power savings. They have Electro-Pneumatic Control, which automatically fits the air supply to air needs. They are adaptable to any type of drive. They have the unfailing dependability which textile mill use demands. Write today for illustrated bulletins about Gardner-Denver "RX" and other compressors. Gardner-Denver Company, Quincy, Ill.; Atlanta, Ga.; Birmingham, Ala.; Knoxville, Tenn.; Dallas, Texas; Houston, Texas; Washington, D. C.



Gardner-Denver "RX" Horizontal, Single-Stage Compressor used with humidity system in Mill No. 2 of Travora Manufacturing Company, Haw River, North Carolina.

GARDNER-DENVER 80th ANNIVERSARY YEAR

Railroads Pay Out More than $2,000,000 Weekly in Missouri

(*Continued from page 34*)

per cent to the state government. Of the total, 64 per cent was used for highways and general expenses and 36 per cent to support public schools.

Still another major contribution of the railroads to the economic life of Missouri is as employers of labor. A state-by-state canvass of active railway employes in July 1937, developed the fact that Class I railroads operating in Missouri were then providing employment to 41,402 persons in the state. The Pullman Company reported 2,165 employes in Missouri, bringing the figure up to 43,567, while employes of smaller railway companies and switching and terminal companies operating in the state would probably increase this figure to approximately 47,000 employes.

The 43,567 Missouri employes of Class I railroads and the Pullman Company received a total compensation of $66,229,000 in 1937, nearly every city and town sharing in this huge railway payroll.

In addition to their other activities in Missouri, the railroads own and operate many locomotive and car repair plants, tie treating plants, icing and coaling stations, freight and passenger stations, warehouses, storage yards and other facilities.

New Books

(*Continued from page 58*)

000,000 bales per season.

The Cotton Exchange Year Book was prepared under the direction of Alston H. Garside, Economist of the Exchange. It contains comprehensive statistics on world supply and world distribution of American and foreign growths of cotton, prices of cotton, yarn, and cloth, mill activity, and other data of interest from a cotton market standpoint.

Republic Steel Appointments

Edward I. Evans, formerly general superintendent of Gulfsteel District, Republic Steel Corporation, has been named manager of the Gulfsteel District, and C. L. Bransford, formerly general superintendent of the Birmingham District, has been named manager of that district, according to C. M. White, Republic's vice president in charge of operations. These appointments follow the resignation of Wade H. Oldham as manager of Republic's Southern District. Because of the division of Republic's southern operations into the Birmingham and Gulfsteel Districts, Mr. Oldham's position will not be filled.

A Deserved Tribute

International Harvester Company is running attractive full page advertisements in several popular magazines which in both text and illustration pay well deserved tribute to truck drivers. Not only the success of the vehicles' operation depends upon these hardy men, whose duties frequently permit no counting of hours, weather or traveling conditions, but there also depend upon them the safe conduct and prompt delivery of valuable merchandise entrusted to their care. They are a hardy breed and the fact is often remarked by those who use the roads for pleasure that the truck driver in most cases is a gentleman whose instincts of courtesy and helpfulness have stood many a wayfarer in good stead.

It is a deserved tribute that this internationally known firm is paying in their advertising to the men who are spending their lives at the wheels of business vehicles.

TO meet demands on physical and mental strength, business men carrying unprecedented burdens must keep robust, refreshed, clear eyed, keen and alert. Good health is the nation's greatest asset.

The HIGHLAND PINES INN offers unsurpassed hospitality in a charming Southern atmosphere among congenial people; giving mental stimulation and physical refreshment outdoors from the bracing, pine-laden air and warm sunshine.

Rain or showers seldom interfere with continuous outdoor life as the sandy soil promptly absorbs all moisture and the pine trees drink in whatever may remain in the air.

Southern Pines is only 9 hours from Washington; 13 hours from New York; 20 hours from Boston and only halfway between New York and Florida on the main line of the S. A. L. Ry. with through Pullman service. On U. S. Highway number one—For rates and reservations write or wire.
M. H. Turner, Manager W. E. Flynn, Associate Mgr.

An Ideal
WINTER RESORT
DECEMBER TO MAY

HIGHLAND PINES INN
SOUTHERN PINES, N. C.

Golf—Polo—Riding—Tennis—Racing—Hunting
Canoeing—Motoring